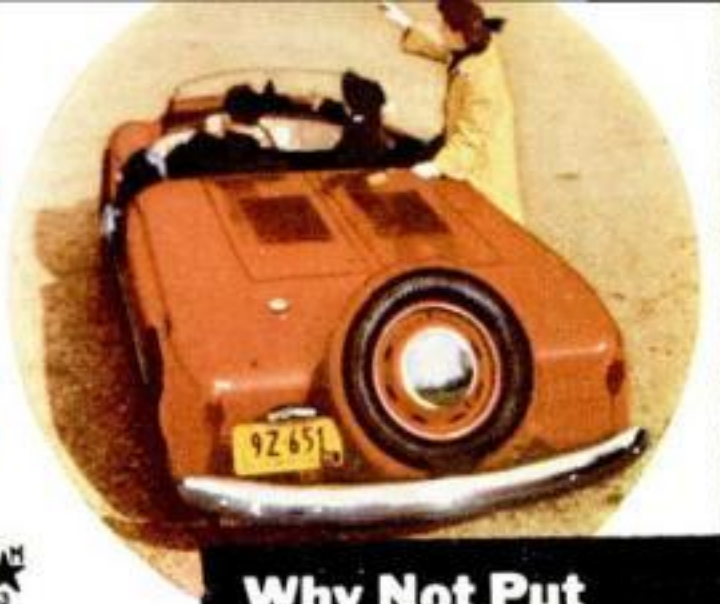


POPULAR SCIENCE

MONTHLY

MECHANICS - AUTOS - HOMEBUILDING



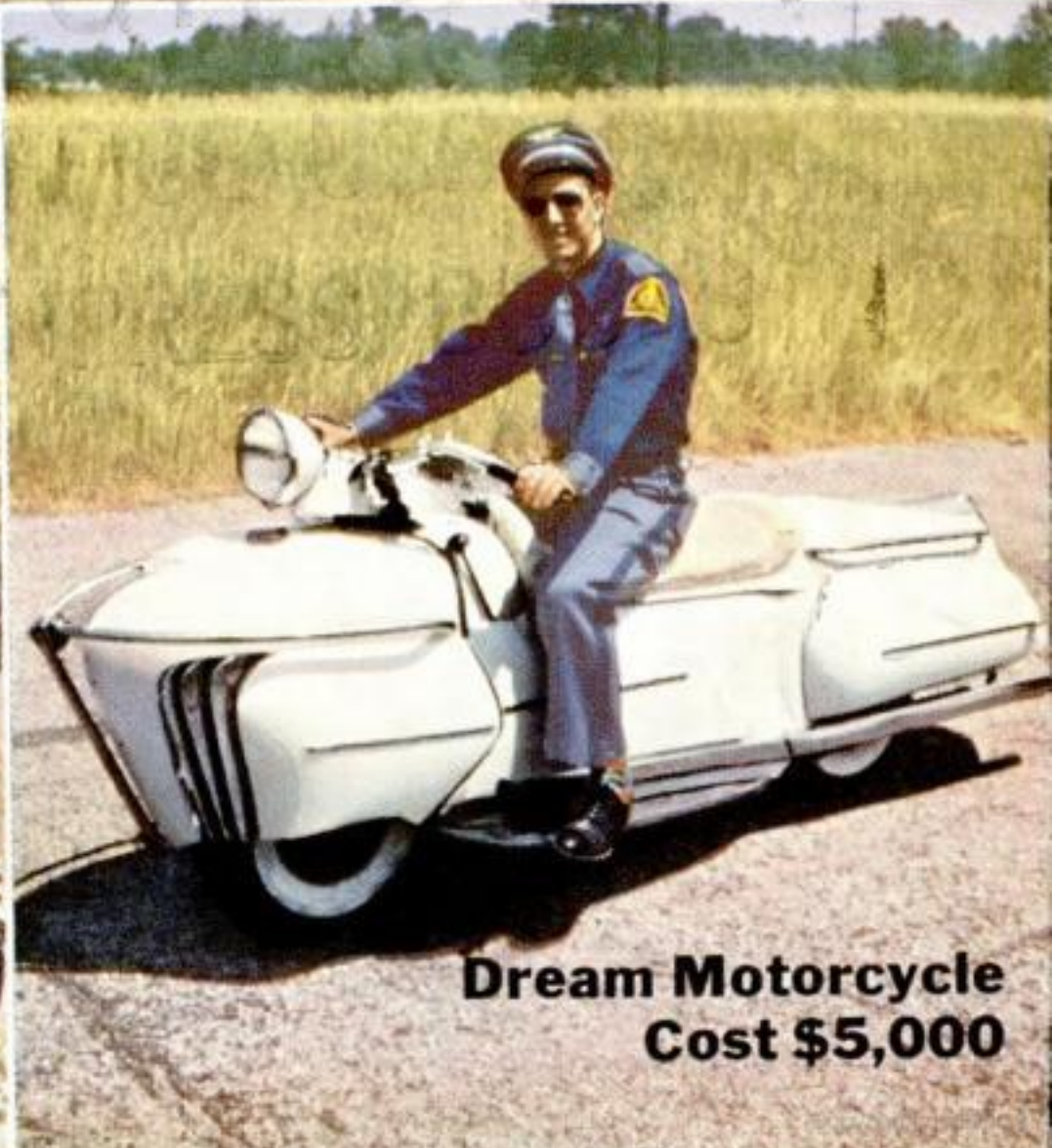
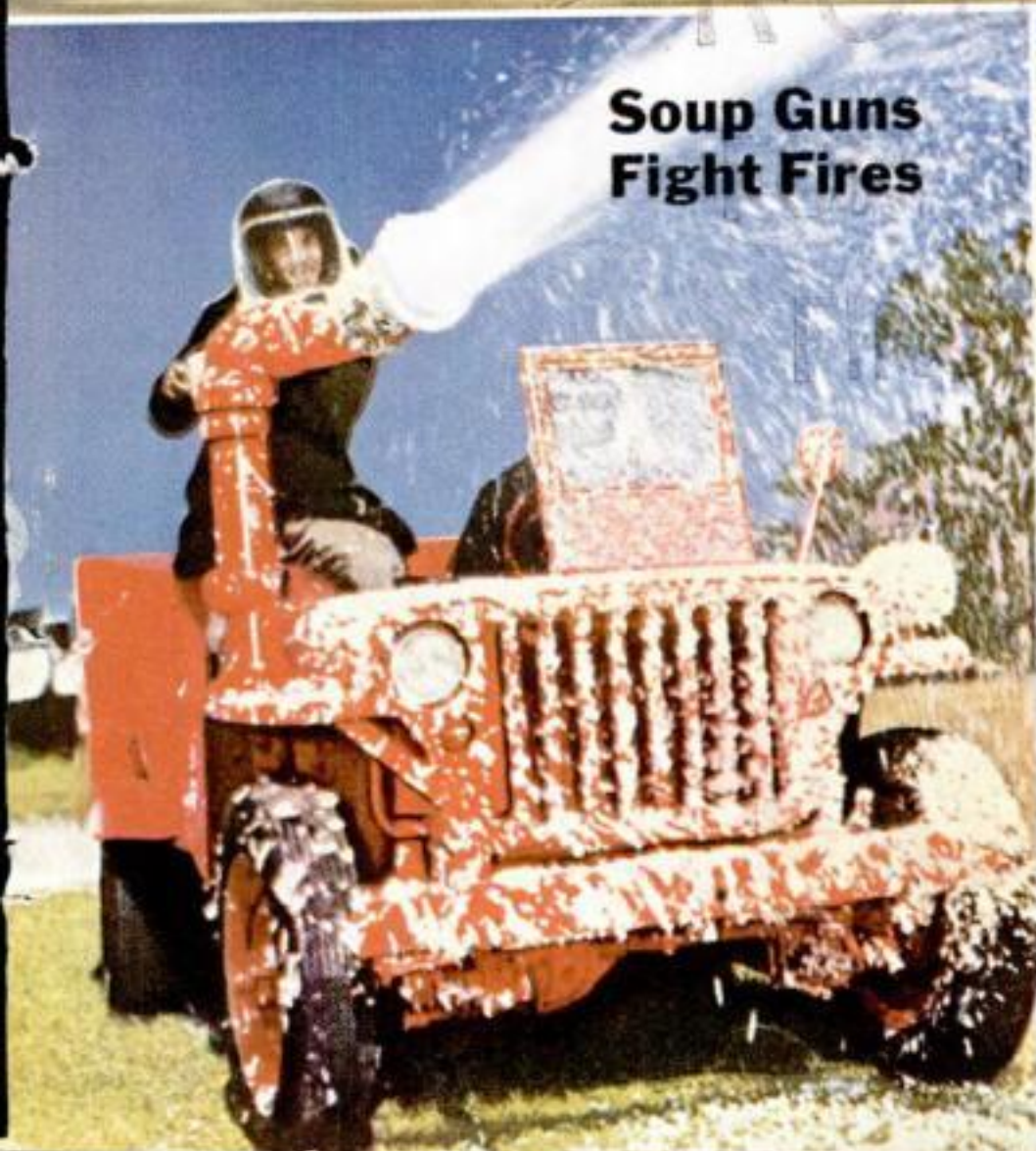
**Why Not Put
Engines in Back?**
PAGE 116

25¢
March

**Spruce Up Now
for Spring** PAGE 179



**Soup Guns
Fight Fires**



**Dream Motorcycle
Cost \$5,000**

Now Any Car Owner *With* "HANDY GUIDE"

HANDY GUIDE FOR CAR OWNERS

Enjoy Week's Trial
FREE
Under this Amazing
Savings Guarantee!

Test book 7 days at our expense.
If not convinced it will help you
save \$100.00 a year, return it
and owe nothing.



Unsightly fender dents are
easily removed, sometimes
pop right out after few
taps from hammer. Just
one of scores of repair jobs
any amateur can easily do.



SAVE \$20.00! If brake
pedal is hard to press,
goes down to floor,
brakes squeak, you
need brake adjustment
or relining. Book ex-
plains steps. (Here) How
to remove pull back
spring from shoe. Book
shows 101 ways to Save
Money — even if you
don't touch tools.

512 Big Double-
Column Pages,
of Step-by-Step
Instructions Anyone Can Understand!

101 Ways to Save on
Service, Maintenance,
and Repair of Your Car!

Book Crammed with Show-How
Pictures, Charts, Diagrams!

Full Library-Size — In Sturdy Washable Binding



General Editor! Frank
Mitchell, famous as
car owner's friend
and instructor in auto
repair, heads staff of
practical writers and
artists who make con-
tents easy to follow.



If beam of sealed-
reflector headlight
goes out, you may
not need costly new
unit. Corroded con-
tacts may be prevent-
ing lamp from light-
ing. To restore light,
merely clean contacts.



SAVE \$3.00 to \$4.00! Install
fuel pump yourself. Tilt as
shown and position pump
arm so it will ride in proper
place on camshaft.



SAVE by cleaning air filter.
Remove filter element as
shown, wash in gasoline, dip
in engine oil, drain and re-
place. Check cleaner every
1000 miles. Cleaning oil and
gas filters is just as easy.

Shows 101 Ways to **SAVE MONEY!**
On Gas — Oil — Tires — Insurance
Repairs — Service — Beautifying —
Buying — Selling — Trading-in — and More!

HERE IT IS! The *first* book ever published with
the primary purpose of telling everything the
average car owner needs to know to **SAVE MONEY**
— to keep his car purring like a kitten.

This brand-new, never-before-published book is
NOT a collection of complicated diagrams and highly
technical facts and figures for the mechanical wizard.
It **IS** an exciting picture-filled book crammed with
easy step-by-step instructions and common sense
guidance which you can understand and use *right*
away to **SAVE MONEY!**

If you're an average car owner, driving 6000 to
10,000 miles a year, you spend about \$400.00 for
Gas, Oil, Summerizing, Winterizing, Repair Bills,
Periodic Servicing, Tires, Insurance, *etc.* This amaz-
ing **NEW** book shows you how to **SAVE** at least
\$100.00 of that figure — not for just one year —
but **EVERY** year! Big savings even for drivers who
don't touch tools!

Here's Partial List of Vast

More Miles for Less Gas

20 Sure Ways to Get
More Gas Mileage
How to Remove,
Clean Out and
Replace Gas Tank
Adjust Carburetor
How to Repair
Clogged Line
And Lots MORE!

Body and Fender

How to Repair
Dents, Match
Colors, Touch Up
Paint, Treat Sur-
face Scratches,
Rust Spots, Etc.
How to Give Car
Mirror-Like
Finish
And Much MORE!

Lubrication

10 Sure Ways to
Save Oil
How to Prevent Oil
Dilution
How to Trace and
Correct Leaks
How to Install Oil
Pump Line
Undercoating
And MORE!

Save on Tires

14 Common Sense
Ways to Get More
Mileage on Tires
Blowout Protection
How to Cross-Switch
Tires
Wheel Balance,
Front End Checks
And Much MORE!

Specifications

For Every Popular
Make Car — As
Far Back as 1935!

Rely on Brakes

How to Make Fast
Brake-Safety Test
How to Adjust and
Re-Line Brakes
Lots MORE!

Auto Insurance

Everything Average
Car Owner Needs
to Know about
All Types
And Much MORE!

Learn the Easy Best Way to:

ADD up to \$300.00 to Resale Price of Car.
How to Get a Better Deal on Trade-In!
TRACE Cause of Starting Troubles Fast!

TIGHTEN Loose Steering, Correct Wobbly
Wheels. Safeguard Your Life and Those
Who Ride with You!

KEEP Car "Tuned-Up" to Smooth Running
Performance — Whether New or Old!

GIVE Your Car Faster Pick-Up and "Go"

PROTECT Engine Parts from Rust and Cor-
rosion. Clean Gas, Oil, Water Lines.

BEWARE of "Miracle Gas and Oil Savers"
on Market. Some May be Harmful to Car!

SAVE \$15.00 Winterizing, Summerizing!

SAVE \$40.00! Hammer Out Dents Yourself!

SAVE \$1.00 Installing New Fan Belt!

SAVE up to \$90.00 on Ring, Valve and
Bearing Job!

SAVE \$100.00 on Service, Maintenance and
Running of Your Car — Even if You Make
No Repairs Yourself!

Interior Beauty

How to Re-up-
holster, Make Seat
Covers, Remove
Stains

Dashboard
Instruments:
Assembly, Repair,
Disassembly
And Lots MORE!

Exhaust System

Disassembly,
Adjustment and
Assembly of:
Muffler, Exhaust
Pipe, Manifold
Pipe

How to Repair Leak
from Exhaust or
Intake Manifolds
And Lots MORE!

Mail Friend-Winning FREE-Examination Coupon TODAY!

May Save \$100.00 a Year or More!

the Aid of FOR CAR OWNERS"

How to Get 2 to 5 More Miles on a Gallon! Up to Double Mileage on Tires! Do Your Own Repairs! Add Longer Life, Greater Value, More Power! No Magic Miracles! Just Plain Common Sense!

A Few of the 101 Ways Book Helps You SAVE

SAVE up to \$50.00 on Gas! Learn 20 SURE WAYS to get from 2 to 5 more miles on every gallon!

SAVE on Oil! 11 ways show how to save up to 50% on oil bills!

SAVE on Tires! 14 common sense ways show you how!

SAVE on Auto Insurance! Everything you need to know about all types. How to Collect Faster!

SAVE on Repair Bills! Book's basic know-how helps you service and repair every popular make car — as far back as 1935 models.

SAVE — Even if You Make No Repairs Yourself! Book lists fair price mechanic should charge for over 100 repair and service jobs. Protects you from bill padding and overcharging!

SAVE When Buying Used Car! CHECK LIST shows you, point by point, how to tell good sound car from "lemon." Takes the gamble out of used car buying.

SEE Contents Below for More Ways book shows how to SAVE MONEY!

Price Slashed IN HALF to Win New Friends!

Where other publishers might charge about \$6.00 for a comparable book, WISE SLASHES that figure in half — to only \$2.95.

But first, week's FREE Trial must convince you book will help you save at least \$100.00 a year — EVERY year — or return it and owe nothing! Send NO money. Mail FREE-Trial Coupon NOW!



Car owner making one-minute adjustment of carburetor idling screw for more gas mileage. He will also clean spark plugs and set points to prescribed clearance. Then by following simple gas-saving driving rules and other common sense ways to save on gas, he'll save up to \$50.00 a year on gasoline alone!



Even an amateur can patch muffler with aid of book's "1-2-3" directions. Clean area, place steel patch over hole and seal.



Save on Auto Insurance! Best type to carry; recommended amount; how to collect damages without red tape; much more!



SAVE \$10.00 to \$25.00 towing fees! **TROUBLE SHOOTER** Section helps you trace trouble fast — fix it right and quick. Make many on-the-road emergency repairs in minutes. Avoid time-wasting layovers at unknown garages along the road.



Beautify inside to look like new! Book shows how to re-upholster, refinish, remove stains, make seat covers, etc. Enjoy that feeling of satisfaction in knowing your car looks as spic and span inside and out as a shiny new showroom model. With book's how-to guidance, you can make your car look better, run better, last longer! Mail FREE-Trial Coupon Now!



Money-Saving Contents Crammed into Book!

Engine Tune-Up

Testing; Adjusting; Cleaning; Using Solvent; Battery; Wiring; Vacuum Advance; Firing Order; Spark Plugs; Points; Carburetion; Automatic Choke; Generator And Lots MORE!

Cooling System

How to Repair Clogged Radiator; Leaky Water Pump; Broken Thermostat Installing Fan Belt How to Winterize, Summerize Anti-Freeze Tips And So Much MORE!



For faster pick-up, smoother riding and more gas mileage, clean and adjust distributor points several times a year. Book shows how.

Auto Wiring

Battery Care How to Repair Shorts and Breaks How to Repair or Replace Heaters Directional Signals Headlights, Inside Lights And Lots MORE!

Front End Repair

Disassembly, Adjustment and Assembly of: King Pins, Pitman Arm, Front Wheels, Shock Absorbers, Transmission, Etc. And Lots MORE!

Major Engine Repair

Disassembly, Adjustment and Assembly of: Connecting Rod Bearings and Main Bearings How to Remove and Replace: Piston Rings, Cylinder Head, Crankcase, Hoses and Gaskets, Removing Carbon And Much MORE!

Valves

Disassembly, Adjustment and Assembly of: Valve Plates, Valves (in Block), Overhead Valves, Valve Springs, Valve Timing Valve Grinding Tappet Clearance Sticking or Leaky Valves And Lots MORE!

Other Engine Repair

How to Repair Leak in Head Gasket Replace Fuel Pump Adjust, Repair, Replace Carburetor Spark Plugs: How to Test, Clean, Replace and Get Correct Clearance How to Test Piston Rings, Ignition And Much MORE!

TROUBLE-SHOOTER SECTION Shows You How to Correct All 64 Most Common Car Troubles Fast and Easy!

How many of these troubles are robbing you of top performance and enjoyment from your car? Engine Won't Start — Misses — Knocks — Overheats — Backfires — Stalls Frequently — Gears Grind — Car Pulls to One Side — Annoying Squeaks — Strange Noises — Sluggish Pick-Up — Horn Keeps Blowing — Defroster Doesn't Clear Windshield — Etc., Etc.

Big, handy TROUBLE-SHOOTER SECTION shows you how to quickly locate and correct these and all 64 most common car troubles — without paying high labor costs. Especially valuable when making on-the-road repairs. Save high towing charges and repair bills from strange garages.

Steer Clear of Trouble

How Much Play Is Too Much? How to Tighten Loose Steering; Adjust Wheel Alignment And Much MORE!

Rear End Repairs

Disassembly, Adjustment and Assembly of: Rear Wheels, Drums, Axle, Bearing, Universals, Etc. And Much MORE!

Wm. H. Wise & Co., Inc. 50 West 47th St., N. Y. 36, N. Y.

Mail Friend-Winning Coupon Now

WM. H. WISE & CO., Inc.
50 West 47th St., New York 36, N. Y.

Without obligation, ship me for Week's FREE Trial the brand-new 512-page . . . "HANDY GUIDE FOR CAR OWNERS"

After 7 days, if convinced it will help me save at least \$100.00 a year, I'll keep it and remit slashed bargain price of only \$2.95 plus postage, at only \$1 monthly. If not 100% delighted, I'll simply return it and owe nothing.

MR. _____
MRS. _____
MISS _____ (Please Print)

135
803A

ADDRESS _____

CITY & ZONE _____ STATE _____

SAVE MORE! Mail only \$3 now and we stand all shipping costs. Return privilege and prompt refund guaranteed.

MARCH 1953

America's Leading New-Idea Magazine for 81 Years

Founded 1872, Vol. 162: No. 3

**POPULAR
SCIENCE**

REG. U. S. PAT. OFF. Monthly

Mechanics and Handicraft
REG. U. S. PAT. OFF.

VOLTA TORREY, EDITOR • Howard Allaway, MANAGING EDITOR
Howard C. Jensen, ART EDITOR • Frank Rowsome Jr., ASSISTANT MANAGING EDITOR

SENIOR EDITORS: Harry Walton (Mechanics & Handicraft), Hartley E. Howe (Features), Martin Mann (Copy).

ASSOCIATE EDITORS: Alden P. Armagnac, Thomas Berger, Henry B. Comstock, Devon Francis, Sheldon M. Gallagher, Kendall W. Goodwyn, Herbert O. Johansen, Herbert R. Pfister, Denis Sneigr, Robert P. Stevenson, Ruth Westphal.

MIDWESTERN EDITOR: Wesley S. Griswold (Chicago) • WESTERN EDITOR: Andrew R. Boone (Los Angeles)

ART: Harry Samuels (Director), Herbert Anthony, Rolf O. Erikson, Eric Karminski Jr., Richard Meyer, Frances Cooper Daniels.

PHOTOGRAPHY: W. W. Morris (Director), Hubert Luckett, Orlando Guerra.

EDITORIAL ASSISTANTS: Harriet Trowbridge, Carol Ennis, Teresa Robbins, Georgette Sparks, Katharine W. Townsend, Jeanne Van Houten.

MARCH, 1953

Everybody's Building Kit Boats



One boat kit and a few simple tools, plus a little patience and a few weekends of work—and you can be the proud skipper of your own boat. For short cuts in assembling these kits, the tools you'll need and some of the kits available, see page 183.

<u>5,000 Railroads Run for Fun.....</u>	<u>99</u>
<u>Shaw Drives America's Most Powerful Car.....</u>	<u>104</u>
<u>His Dream Motorcycle Cost \$5,000.....</u>	<u>111</u>
<u>Are Rear-Engine Cars Coming?.....</u>	<u>116</u>
<u>Machine Tools Keep Trains Rolling.....</u>	<u>132</u>
<u>Navy Soup Guns Fight Plane Fires.....</u>	<u>144</u>
<u>Will Your Next House Be Central-Cooled?....</u>	<u>152</u>
<u>How We'll Live on Mars.....</u>	<u>158</u>
<u>Watching Roller Derby.....</u>	<u>172</u>
<u>Now's the Time to Spruce Up Your Home....</u>	<u>179</u>
<u>Wizard's Boxes You Can Build.....</u>	<u>188</u>
<u>What a Timing Light Can Tell You.....</u>	<u>193</u>
<u>Gus Answers an Ambulance Call.....</u>	<u>196</u>
<u>Overhauling a Model T Engine.....</u>	<u>201</u>
<u>How to Use a Chain Saw.....</u>	<u>224</u>
<u>For a Real Shine . . . Buff It!.....</u>	<u>228</u>
<u>I Built a Portable Tape Recorder.....</u>	<u>232</u>
<u>5 Basic Birdhouses</u>	<u>238</u>

(More features and departments are listed on page 4.)

Godfrey Hammond, PUBLISHER • Stephen P. Glennon, ADVERTISING DIRECTOR

ADVERTISING OFFICES: NEW YORK—353 Fourth Ave.; CHICAGO—360 North Michigan Ave.; DETROIT—820 Book Bldg.; SAN FRANCISCO—681 Market St.; CLEVELAND—328 Citizens Bldg.; LOS ANGELES—2550 Beverly Blvd.
EDITORIAL OFFICES: 353 Fourth Avenue, New York 10, N. Y.

Published monthly at 353 Fourth Avenue, New York 10, N. Y., by Popular Science Publishing Co., Inc., Godfrey Hammond, President and Treasurer; R. C. Wilson, Stephen P. Glennon, Vice-Presidents; F. W. Briggs, Secretary. Entered as second-class matter Dec. 28, 1918, re-entered as second-class matter July 26, 1948, at the Post Office in New York, N. Y., under the act of March 3, 1879; additional entry as second-class matter at Dayton, Ohio. Entered as second-class matter at the Post Office Department, Canada, Printed in U.S.A. Copyright, 1953, by Popular Science Publishing Co., Inc. All rights reserved in the United States, Great Britain, and in all countries participating in the International Copyright Convention and Pan-American Copyright Convention. Yearly subscriptions to United States, its possessions and Canada, \$3.00 (2 years, \$5.50; 3 years \$7.50); foreign countries \$1 per year extra. Four weeks' notice is needed to change a subscriber's address. Please give both old and new addresses, including postal zone numbers.

clean sweep!



Every AAA championship race in 1952
was won by a car equipped with

**These were the winning drivers
... the winning rings were
Perfect Circles!**

May 30 Indianapolis, Ind.	500 Miles	Troy Ruttman
June 8 Milwaukee, Wis.	100 Miles	Mike Nazaruk
July 4 Raleigh, N. C.	200 Miles	Troy Ruttman
Aug. 16 Springfield, Ill.	100 Miles	Bill Schindler
Aug. 24 Milwaukee, Wis.	200 Miles	Chuck Stevenson
Aug. 30 Detroit, Mich.	100 Miles	Bill Vukovich
Sept. 1 DuQuoin, Ill.	100 Miles	Chuck Stevenson
Sept. 1 Pikes Peak, Colo.		George Hammond
Sept. 6 Syracuse, N. Y.	100 Miles	Jack McGrath
Sept. 8 Denver, Colo.	100 Miles	Bill Vukovich
Nov. 2 San Jose, Calif.	100 Miles	Bobby Ball
Nov. 11 Phoenix, Ariz.	100 Miles	Johnny Parsons

Perfect Circle PISTON RINGS

What does this mean to you? Just this—if your engine is tired, sluggish, oil thirsty, you'll get championship performance with Perfect Circle piston rings!

Perfect Circle's 2-in-1 Chrome Set seals compression, seals oil, for over twice as long as ordinary rings. And only 2-in-1 offers a choice of expander springs with each oil ring, to assure positive oil control.

For sustained power, longer life, real gas and oil economy, install 2-in-1 in your car. Perfect Circle Corporation, Hagerstown, Indiana; The Perfect Circle Co., Ltd., Toronto, Ontario.



Mister—can your hair pass the **CARESS TEST?**



**GROOMS
HAIR,
NEVER
GREASES
IT!**



Do you shrink from that moment when she runs her fingers through your hair—afraid she'll find it oily? Then switch today to Mennen Cream Hair Oil. Lightly blended—leaves no trace. Contains lanolin. Helps remove dandruff scales, relieve dry scalp. Get it today—pass her Caress Test tonight!

MENNEN
Cream Hair Oil **FOR MEN**

4 POPULAR SCIENCE

News and Pictures

The Fish that Evolution Forgot.....	108
How to Gauge 1/100,000 Inch.....	114
Mowing the Grass with Rocket Fuel.....	122
Boxer Flings 1-2 Punch Off Korea.....	126
Spray Suit Keeps Sub Crews Dry.....	130
"Hypo" Speeds Mountain Mail.....	136
The Old Dog Wagon Puts on the Dog....	138
New Tools for Big Eaters.....	142
Rockets Race and Roar in California.....	164
Chevrolet Shows Plastic Sports Car.....	166
Stamps Show World's Cars.....	168
Bomber Gets Crescent Wing.....	170

Mechanics and Homebuilding

Storage Chest Hides Wardrobe Trunk....	192
Brighten Up Your Car for Spring.....	195
Have You Tried Wire-Brushing Wood?..	206
Expert Craftsman Builds Coffee Table....	209
Why the Days Grow Longer.....	212
One-Evening Shop Projects.....	214
Cruiser Built from Tin Cans.....	218
Radio Locator Finds Lost Model Planes..	237
Darkroom Equipment You Can Make....	241

Departments

Letters	10
I'd Like to See Them Make.....	131
New Ideas from the Inventors.....	149
P.S. Last Minute News and Notes.....	178
Hints from the Model Garage.....	199
Keeping the Home Shipshape.....	216
New Tools.....	222
New Shop Ideas.....	242

NEXT MONTH . . .

18th-Century Coach Gets 20th-Centuryized



Britain's gilded State Coach, which will carry Queen Elizabeth to her coronation next June, is getting the sprucing-up of its 200 years. POPULAR SCIENCE for April will show how artisans are giving it a delicate face-lift and fitting the four-ton, eight-horsepower vehicle, for the first time, with such accessories as rubber tires and electric lights.

I.C.S. student
J. R. Todd's
pay increased
\$120 per mo.



I.C.S. student
Patrick Ross,
Jr., became
Gen'l Supt. of
construction
company.



I.C.S. student
S. C. Traegde
rose from
farm laborer
to Senior Re-
search Chem-
ist.



I.C.S. student
H. A. Howell
got job pay-
ing \$100 a
month more.



I.C.S. student
W. K. Watson
changed jobs
twice - for
higher pay
each time.



WHO ELSE

Wants to Get Ahead Faster This Famous Way?



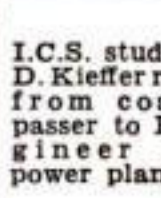
I.C.S. student
F. G. Brig-
ham, promot-
ed to Assistant
Treasurer of
his firm.



I.C.S. student
H. D. Fowler
became a
famous in-
ventor.



I.C.S. student
M. A. Duford
was appointed
Loom Fixer
before com-
pleting course.



I.C.S. student
D. Kieffer rose
from coal-
passer to En-
gineer of
power plant.



I.C.S. student
R. F. Lee, rose
to Advertis-
ing Promotion
Mgr. of large
corporation.



I.C.S. student
F. Bachtik's
pay rose from
\$152 to \$395
per month.



I.C.S. student
P. E. Barber
now owns his
own business.



I.C.S. student
W. L. Mc-
Curdy be-
came Station
Electrician of
giant Hydro-
Electric Sub-
station.



I.C.S. student
C. T. Baker
became well-
known Cons-
ulting En-
gineer.

I.C.S. has 14 file cases crammed with success stories of I.C.S. students like those shown here! In fact, a recent Survey showed that—in one single 120-day period—1973 I.C.S. students were promoted to better jobs!

Wouldn't YOU like to start moving up in the world—get higher pay, at more interesting work; rid yourself of constant money worries?

FOR ONLY A FEW CENTS A DAY you can prepare yourself the famous I.C.S. way. Right at home, in spare time, you acquire the additional training you need to increase your earning power—in your present field or in a profitable new career.

FREE—2 INTERESTING BOOKS

Mail coupon for Free Book about subject you're interested in. Also, free, "How to Succeed"—36-page goldmine of advice on Why People Fail, How to Pick Your Goal, How to Develop Hidden Talents, etc. Take advantage of today's new job opportunities. Mail coupon, without obligation, NOW.



INTERNATIONAL CORRESPONDENCE SCHOOLS



BOX 7641-N, SCRANTON 9, PENNA.

Without cost or obligation, send me "HOW to SUCCEED" and the booklet about the course BEFORE which I have marked X:

ART

- ☐ Commercial Art
- ☐ Magazine and Book Illustrating
- ☐ Cartooning
- ☐ Show Card and Sign Lettering
- ☐ Fashion Illustrating
- ☐ AUTOMOTIVE
- ☐ Automobile, Mechanic
- ☐ Auto-Elec. Technician
- ☐ Auto Body Rebuilding and Refinishing
- ☐ Diesel—Gas Engines
- ☐ AVIATION
- ☐ Aeronautical Engineering Jr.
- ☐ Aircraft Engine Mechanic
- ☐ Airplane Drafting
- ☐ BUILDING
- ☐ Architecture
- ☐ Arch. Drafting
- ☐ Building Contractor
- ☐ Estimating
- ☐ Carpenter and Mill Work
- ☐ Carpenter Foreman
- ☐ Reading Blueprints
- ☐ House Planning
- ☐ Plumbing

- ☐ Heating
- ☐ Steam Fitting
- ☐ Air Conditioning
- ☐ Electrician

BUSINESS

- ☐ Business Administration
- ☐ Certified Public Accountant
- ☐ Accounting
- ☐ Bookkeeping
- ☐ Stenography and Typing
- ☐ Secretarial
- ☐ Federal Tax
- ☐ Business Correspondence
- ☐ Personnel and Labor Relations
- ☐ Advertising
- ☐ Retail Business Management
- ☐ Managing Small Business
- ☐ Sales Management
- ☐ Salesmanship
- ☐ Traffic Management
- ☐ CHEMISTRY
- ☐ Chemical Engineering
- ☐ Chemistry
- ☐ Analytical Chemistry
- ☐ Petroleum—Nat'l Gas
- ☐ Pulp and Paper Making
- ☐ Plastics

CIVIL, STRUCTURAL ENGINEERING

- ☐ Civil Engineering
- ☐ Structural Engineering
- ☐ Surveying and Mapping
- ☐ Structural Drafting
- ☐ Highway Engineering
- ☐ Reading Blueprints
- ☐ Concrete Construction
- ☐ Sanitary Engineering
- ☐ DRAFTING
- ☐ Aircraft Drafting
- ☐ Architectural Drafting
- ☐ Electrical Drafting
- ☐ Mechanical Drafting
- ☐ Structural Drafting
- ☐ Sheet Metal Drafting
- ☐ Mine Surveying and Drafting
- ☐ ELECTRICAL
- ☐ Electrical Engineering
- ☐ Electrician
- ☐ Electrical Maintenance
- ☐ Electrical Drafting
- ☐ Electric Power and Light
- ☐ Lineman
- ☐ HIGH SCHOOL
- ☐ High School Subjects

- ☐ College Preparatory
- ☐ Mathematics
- ☐ Commercial
- ☐ Good English

MECHANICAL AND SHOP

- ☐ Mechanical Engineering
- ☐ Industrial Engineering
- ☐ Industrial Supervision
- ☐ Foremanship
- ☐ Mechanical Drafting
- ☐ Machine Design-Drafting
- ☐ Machine Shop Practice
- ☐ Tool Design
- ☐ Industrial Instrumentation
- ☐ Machine Shop Inspection
- ☐ Reading Blueprints
- ☐ Toolmaking
- ☐ Gas—Electric Welding
- ☐ Heat Treatment—Metallurgy
- ☐ Sheet Metal Work
- ☐ Sheet Metal Pattern Drafting
- ☐ Refrigeration
- ☐ POWER
- ☐ Combustion Engineering
- ☐ Diesel—Electric
- ☐ Electric Light and Power

- ☐ Stationary Steam Engineering
- ☐ Stationary Fireman
- ☐ RADIO, TELEVISION, COMMUNICATIONS

- ☐ General Radio
- ☐ Radio Operation
- ☐ Radio Servicing—FM
- ☐ Television
- ☐ Electronics
- ☐ Telephone Work
- ☐ RAILROAD
- ☐ Locomotive Engineer
- ☐ Diesel Locomotive
- ☐ Air Brakes
- ☐ Car Inspector
- ☐ Railroad Administration
- ☐ TEXTILE
- ☐ Textile Engineering
- ☐ Cotton Manufacture
- ☐ Rayon Manufacture
- ☐ Woolen Manufacture
- ☐ Loom Fixing
- ☐ Finishing and Dyeing
- ☐ Textile Designing
- ☐ HOME ARTS
- ☐ Dressmaking and Designing
- ☐ Cookery
- ☐ Tea Room Management

Name _____ Age _____ Home Address _____

City _____ State _____ Working Hours _____ A.M. to _____ P.M.

Occupation _____

Special tuition rates to members of the Armed Forces. Canadian residents send coupon to International Correspondence Schools Canadian, Ltd., Montreal, Canada.

NEW 1953 MANUAL SHOWS YOU HOW TO SQUEEZE 45 MILES ▶ FROM ONE GALLON OF GAS ◀

ZOOM AHEAD



0 to 60
in 12 Seconds
•
Faster Get-Away
•
Increase
top speed
20 Miles

Extra Pep, Speed, Power, Economy yours with ANY make car!

Raceway Secrets Revealed!

Here at last—after long careful preparation—the latest 1953 automotive manual that shows you how to save \$\$\$ on gas, tires, repairs, accessories. This amazing book, hot off the presses is the **NEWEST** now available in America! It gives you the down-to-earth facts on how to get 30, 40, 50 miles on a single gallon of gas. No longer need you get rattled to see "tin can jalopies" beat you at the light everytime... leave you in the dust on the highway! Now you can give your car greater pep, add up to 30 miles per hour to its top speed, surge ahead from 0 to 60 miles in 12 seconds flat. You can save hundreds of dollars annually, burn water with gas, extend car life by simple easy tricks, quickly recondition cylinder walls without removing the motor! It seems incredible but it's true! Many of these methods have been tested by huge industrial and oil firms, special laboratories, government bureaus. Some are used by the Army, Navy and Air Force. Some have come from the Indianapolis Speedway champions. Now this information is yours in the new 1953 book: **"HIGH SPEED & EXTRA POWER"**—hot off the presses.



of cheap gadgets that work miracles with any motor, a 1953 model or a junkyard derelict! Shows you how to **SAVE** up to \$500.00 a year, increase resale value of your car, reduce repair costs.

Hundreds of Valuable Money Saving Secrets!

Here is some of the amazing information given you: 20 ways to save gas or oil; alcohol-air injection systems; mixing air & fuel; car super-charging ideas; speed and power tuning; how to increase top power & speed, get instant starts in winter, better pick-up on hills; 10,000 extra tire miles, make minor repairs yourself and save plenty, new plastic methods for removing body dents; new paints that go right over rust. **PLUS: HUNDREDS** of other ideas on adjustment & maintenance of your car inside and out! Thousands of wide-awake Americans have this money saving knowledge. Have you? Get your **"Higher Speed and Extra Power Manual"** now! Stop wasting gas and oil. Stop paying for sucker repairs! Get more power, more speed! Get faster get-away! Leave 'em in the dust with a higher compression car!

Easy Pictures Show you How

No need to be a mechanic! Easy directions & clear pictures show you how to get more speed, extra power, greater economy with only a screwdriver. Tells

U. S. Gov't. Scientist
reveals how to



BURN WATER & SAVE GAS!

Here's only **ONE** of over a thousand secrets that show you how to get marvelous new power and save gas too! Make your own "Super-Charger" with a cheap mason jar and 15c rubber hose! So simple—so easy—yet it can actually save you up to 35% more gas! You'll be dazzled with the terrific new power you get with this moderate water injector!

DRIVE 8000 MILES WITHOUT OIL CHANGE

Do you need help to stop power waste? A quarter's worth of graphite will work wonders for you! This method used by thousands. Try it... you'll be amazed! There's over 1000 more ideas for you—easy to understand with pictures that show you how! Busy executives or ladies can let their service station or attendant make many changes shown in this book. Most fellows, however, prefer to have the fun and satisfaction of doing it themselves. After all it's so simple with the easy instructions & step-by-step pictures! Remember, you must be satisfied or this manual costs you nothing!

FREE

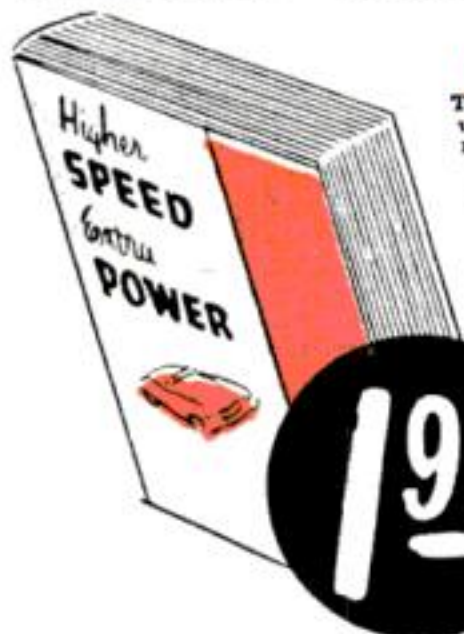
even if you return manual!

1 Pocket "TROUBLE SHOOTER" helps you find cause of motor defects, with repair advice.

2 "SAVE ON ACCESSORIES" — saves you plenty on tires, accessories, gadgets. Not a catalog—absolutely impartial.

3 "ECONOMY DRIVING TECHNIQUE" — tells about famous Indianapolis driving techniques that gave 150 miles per gallon!

4 "33 WAYS TO Increase Trade-in Value". May be worth hundreds to you! Stock limited! Rush coupon TODAY for 7 day trial.



Read it at our risk!

This great new book is yours to try 7 days without obligation! Only **ONE** of its ideas may begin to save you money the day received, for instance: a screwdriver tune-up trick that gives you added power, pep and economy—in a few minutes! But be sure you get the genuine **ORIGINAL** and very latest! Remember: We don't sell automotive supplies! This is not a catalog! No "coupons"! No deception! This book tells **THE TRUTH**. Send no money. Pay only **1.98** plus post. on arrival. Read 7 days at our risk. Let **RESULTS** talk for themselves. You must be delightfully surprised or your money back! Act **NOW!** Mail coupon today!

1.98

MAIL COUPON

SPEEDWAY BOOKS

127 West 33rd Street, Dept. 7-SC, New York 1, N. Y.

RUSH HI-SPEED & EXTRA POWER manual on 7 day trial, money-back guarantee. I will pay **1.98** plus postage on arrival. Also send **FREE** the following: "Trouble Shooter", "Save on Accessories", "Economy Driving Technique" and "33 Ways to Increase Trade-In Value", mine to keep even if I return manual for refund.

NAME

ADDRESS

TOWN STATE

☐ **SAVE MORE—GET MORE** by sending \$2 check, m.o. or cash, in which case we pay postage and include **MOTORISTS' COMPASS** at no extra cost. Same money-back guarantee!

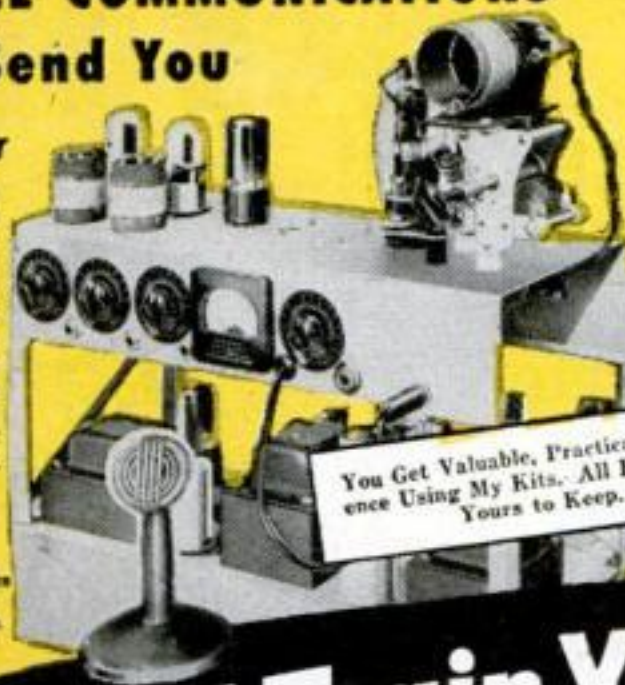
YOU PRACTICE COMMUNICATIONS with Kits I Send You

Build This Transmitter

As part of my Communications Course I send you parts to build the low power Broadcasting Transmitter shown at the right. Use it to get practical experience putting a station "on the air," perform procedures required of Broadcast Station operators. You build many other pieces of equipment with kits I send. I train you for your FCC Commercial Operator's License.



J. E. Smith
has trained more men
for Radio-TV
than any other man.



You Get Valuable, Practical Experience Using My Kits. All Equipment Yours to Keep.

YOU PRACTICE SERVICING with Kits I Send You

Build This Tester

You build this Multitester from parts I send, use it to earn extra money in your spare time fixing neighbors' Radios. I also send you speaker, tubes, chassis, transformer, loop antenna, everything you need to build a modern Radio and other equipment. You get practical experience working with circuits common to both Radio and Television. All equipment is yours to keep. See and read about it in my FREE 64-page book. Just cut out and mail coupon below!



I Will Train You at Home to be a RADIO-TELEVISION Technician

TELEVISION

Today's Good Job Maker

TV now reaches from coast-to-coast. Over 15 million TV sets are now in use; 108 TV stations are operating and 1800 new TV stations have been authorized. This means more jobs, good pay jobs with bright futures. Now is the time to get ready for success in TV. Find out what Radio-Television offers you. Mail coupon now for my 2 Books FREE!



America's Fast Growing Industry Offers You Good Pay, Success

Do you want a good pay job, a bright future, security? Then get into the fast growing RADIO-TELEVISION industry. Hundreds I've trained are successful RADIO-TELEVISION TECHNICIANS. Most had no previous experience, many no more than grammar school education. Keep your job while training at home. Learn RADIO-TELEVISION principles from easy-to-understand lessons. Get practical experience on actual equipment you build with parts I send you.

Make Extra Money in Spare Time While Training

The day you enroll I start sending you SPECIAL BOOKLETS that show you how to service neighbors' Radios in spare time while training. Use MULTITESTER you build to help service sets, get practical experience working on circuits common to both Radio and Television. Find out how you can realize your ambition to be successful in the prosperous RADIO-TELEVISION industry. Even without Television, the industry is bigger than ever before. 105 million home and auto Radios, over 2900 Radio Stations, expanding Aviation and Police Radio, Micro-Wave Relay, FM and Television are making opportunities for Servicing and Communications Technicians.

Mail Coupon — Find Out What Radio-TV Offers You

Send for my FREE DOUBLE OFFER. Cut out and mail coupon below. Send in envelope or paste on postal. You will get actual Servicing Lesson to prove it's practical to learn at home. You'll also receive my 64-page Book, "How to Be a Success in Radio-Television." Read what my graduates are doing, earning, see photos of equipment you practice with at home. J. E. Smith, President, Dept. 3CB
National Radio Institute, Washington 9, D. C.

Good for Both—FREE

MR. J. E. SMITH, President, Dept. 3CB
National Radio Institute, Washington 9, D. C.
Mail me Sample Lesson and 64-page Book, "How to Be a Success in Radio-Television." Both FREE. (No salesman will call. Please write plainly.)

Name.....Age.....

Address.....

City.....Zone.....State.....

Approved Under G. I. Bill

I TRAINED THESE MEN



Has Growing Business

"I am becoming an expert Teletrician as well as Radiotrician. Without your practical course I feel this would have been impossible. My business continues to grow." —Philip G. Brogan, Louisville, Ky.

Good Job with Station

"I am Broadcast Engineer at WLPN. Another technician and I have opened a Radio-TV service shop in our spare time. Big TV sales here. As a result we have more work than we can handle." —J. H. Bangley, Jr., Suffolk, Va.

Praises NRI as Best Course



"I was a high school student when I enrolled. My friends began to bring their Radios to me. I realized a profit of \$300 by the time I completed the course." —John Hopper, Nitro, West Va.

Gets First Job Thru NRI

"My first job was operator with KDLR, obtained for me by your Graduate Service Dept. I am now Chief Engineer in charge of Radio Equipment for Police and Fire Department." —T. S. Norton, Hamilton, Ohio.



NRI Training Leads to Good Jobs Like These



Broadcasting: Chief Technician, Chief Operator, Power Monitor, Recording Operator, Remote Control Operator, Servicing: Home and Auto Radios, P.A. Systems, Television Receivers, Electronic Controls, FM Radios. In Radio Plants: Design Assistant, Transmitter Design Technician, Tester, Serviceman, Service Manager. Ship and Harbor Radio: Chief Operator, Assistant Operator, Radiotelephone Operator. Government Radio: Operator in Army, Navy, Marine Corps, Coast Guard; Forestry Service Dispatcher, Airways Radio Operator, Aviation Radio: Transmitter Technician, Receiver Technician, Airport Transmitter Operator. Television: Pick-up Operator, Voice Transmitter Operator, Television Technician, Remote Control Operator, Service and Maintenance Technician.



Tested Way to Better Pay

**SAVE
70%**

SACRIFICE SALE!

**MUST RAISE CASH!
CREDITORS DEMAND PAYMENT!**

Frankly, we're in a tight fix! Thousands of 17 jewel precision-built watches came in too late for last Christmas and far too early for the next! Our creditors won't wait! They demand payment NOW. Our misfortune is your lucky break! Buy now! Save up to \$70.00 on one watch!

5 DAYS FREE TRIAL

Examine... check... appraise any THORESEN watch for 5 days at no risk whatsoever! Full price back if not delighted, **SEND NO MONEY**—Pay price plus postage on arrival. Or send check, cash or money order for quick, prepaid delivery and **SAVE MORE!** Given: **COBRA** Expansion band with every watch, also instructions, Guarantee Certificate and gift shown. Rush coupon now! Prices subject to rise after present over-stock is exhausted. References: **Jewelers Board of Trade, Better Business Bureau** or any national bank. Buy with confidence! Thoresen's is a reliable, nationally known firm. Address:

THORESEN DIRECT SALES, Dept. 7-C
131 WEST 33rd STREET NEW YORK 1, N. Y.

FREE

German made
**KLAROVIS
SUPER
POWER**



glasses yours **FREE** with purchase of any watch. Compare to any domestic binoculars claiming 18 mile ranges and selling to \$9.95. Yours to **KEEP** even if you **RETURN WATCH** for refund.



IMPERIAL DELUXE 18 kt. Rolled GOLD PLATE

CHRONOGRAPH

TIMES: SPORTS • PHOTOGRAPHY • LAB WORK • SHOP WORK, ETC.

This is the **IMPERIAL** model of the **Recipro-Register Chronograph**—the **BEST** brand available anywhere in the world today! Thousands of proud owners paid much, much more because this is the **Prince of modern watches**—the last word in magnificent styling. Case made of **18 Karat rolled GOLD PLATE** with lifetime **Stainless Steel** back! Precision engineered to the highest traditions of Swiss craftsmanship! A smart, slim unusual timepiece of functional beauty. It's the **"CHRONOGRAPH THAT REMEMBERS!"** Freezes result while movement continues to keep time!

CHECK FEATURES WITH \$100.00 WATCHES!

- 5 MULTIFUNCTION DIALS
- LUMINOUS NO.'S & HANDS
- HAIRLINE SWEEP SECOND
- UNBREAKABLE CRYSTAL
- 17 JEWELS
- 18 KT. RGP
- 5 HANDS
- INCABLOC
- SPLIT SECOND CALIBRATION
- 2 CLUTCH OPERATION
- ANTI-MAGNETIC
- SHOCK PROTECTED

DON'T PAY \$100.00 or more to a credit jeweler around Christmas time! Get the Genuine, Original **RECIPRO-REGISTER** at our **SACRIFICE PRICE for CASH—27.25 plus 10% tax, total: \$29.98** (while stocks last). **YOU SAVE OVER \$70.00.** Given: Nationally advertised \$4.95 **COBRA** expansion band, gift case, instructions and our written guarantee as well as German made **KLAROVIS** field glasses! Don't lose this bargain of a lifetime—send **TRIAL COUPON—NOW!** Check Number **233-18 K.**

27²⁵
plus
tax

**17 Jewel Incabloc
WATERMASTER 12⁹⁵**
Plus
Tax

Ever a favorite with sports-
men, Marines, Sailors,
Soldiers, Aviators, Drop

it, wet it, jolt it at work or play! Actually runs under water! Splendid timepiece made with exacting standards. Thousands sold for much higher prices! Compare with waterproofs at \$59.50. **SPECIAL QUALITY FEATURES:** Incabloc Protected • Shock Absorbing • Water Gasket • 17 Jewels • Luminous hands and No.'s • Unbreakable crystal. A guaranteed **QUALITY** timepiece. Best of all you save \$46.55. Sacrifice price: **\$12.95 plus 10% tax, total only: \$14.25.** Order by No. 224.



17 Jewel—Full Swing

AUTOMATIC 24⁹⁵
Plus
Tax

The **JET-O-MATIC** makes ordinary watches old fashioned by comparison! It's the **360° FULL-SWING AUTOMATIC!** Just set it... then forget it! It winds itself as you wear it. It can never be overwound. Its 17 Jewel **INCABLOC-PROTECTED** movement is a great achievement of **SCHILD**—three time Gold Medal winner. Besides it's Water & Shock resistant. You can **DROP** it... **JOLT** it... even **SWIM** with it! **OUTSTANDING QUALITY FEATURES:** Raised Gilt Numerals • Radium Applique Markings • Unbreakable Crystal • Tested 17 Jewel Precision Movement • Hairline Sweepsecond • Stainless Steel Screw-back • Split-second calibrations • Thin, small, smart! **NOW—NOT \$92.50.** Special summer price—**\$24.95**, plus 10% tax, total: **27.45.** Order by Number 238.



SEND NO MONEY! Mail Coupon now for home trial!

THORESEN DIRECT SALES, Dept. 7-C

131 West 33rd Street, New York 1, N. Y.

RUSH watch(es) checked on **5 DAY TRIAL.** Send following **FREE** of extra cost with each and every watch purchased: 1. Reg. 4.95 **COBRA** Band. 2. Imported Power Glass. 3. Guarantee Certificate. 4. Gift Box. 5. Instructions.

☐ Payment enclosed. Send prepaid.

☐ Send C.O.D., plus post.

CHECK WATCH DESIRED. (Prices shown here are tax paid.)

☐ No. 233-18K **CHRONOGRAPH**—\$29.98

☐ No. 224 **INCABLOC**—\$14.25

☐ No. 238 **AUTOMATIC**—\$27.45

You are to refund **FULL PURCHASE PRICE** if I am not delighted, keeping the "Klarovis" as your gift to me.

NAME _____

ADDRESS _____

TOWN _____

STATE _____

**UNCONDITIONAL
GUARANTEE
EXCLUSIVE OF PARTS!**

FREE repair service **ANYTIME** if needed by skilled watchmakers—for the **LIFETIME** of this firm. No cost ever for "handling," adjustment or service. **FREE** annual oiling and timing service. **THORESEN** makes **LIFETIME FRIENDS!** Remember: If you are not satisfied with your purchase after 5 day trial, return for full price refund. Our written **Guarantee Certificate** enclosed with every watch!



Yours* ALMOST AS A *Gift!

25 HITLER STAMPS

**Only 25¢ for The Entire Set of
Amazing Bargain Offer! 25 Stamps, All Different
Guaranteed to Be Worth Over TWICE as Much!**

More people buy stamps from Littleton than from any other concern in the world! To introduce you to our services, we offer this amazing bargain—25 colorful Hitler stamps, from five different countries: Germany, Poland, Bohemia-Moravia, Russia, and Italy. All were issued when the ruthless Nazi dictator was at the height of his evil power. All different. All are much sought after. Yet the entire fascinating set is now yours almost as a GIFT—only 25¢! But our supply is limited. So please don't ask for more than one set.

If you act at once, we will send you—FREE—the valuable magnifying glass shown here. The stamps and magnifier together are worth \$1.00 at retail. We'll also include other interesting offers for your inspection.

MAIL COUPON NOW—Don't delay. Be the first in your neighborhood to have this valuable set. But you must hurry if you want to get the 25 Hitler stamps practically as a gift . . . and the magnifying glass free. This special bargain offer may have to be withdrawn soon. So rush the coupon at once to Littleton Stamp Co., Dept. 3-PS, Littleton, New Hampshire.

FREE IF YOU ACT AT ONCE!

Valuable Stamp Magnifying Glass—Enables you to see fascinating details on stamps that you can't see with naked eye. Also to find mistakes that make stamps valuable. And on this amazing offer you can get it FREE—while supply lasts!



LITTLETON STAMP CO.

Dept. 3-PS, Littleton, N. H.

I enclose 25c. Please send set of 25 Hitler Stamps—all different. Also send FREE—while supply lasts—the stamp magnifying glass described above.

Name.....

Address.....

City.....State.....

MARCH 1953 9

Letters



More Ways to Make a Cabin Howl

In answer to Hugh F. Kirkwood's plea for help in making the wind shriek around his cabin [Letters, Oct. '52, p. 20] I suggest he buy an Aeolian harp. An apple box and a few guitar strings might also work.

RICHARD H. HOPKINS, Beaumont, Tex.

A taut horsehair and the thin crack of a barely opened window might do the trick...

GAROLD W. CURO, S. San Francisco.

Hot-Rod Lingo Goes High-Brow

I plan to include the "Hot-Rod Dictionary" [Dec. '52, p. 185] in my bibliographical notes for *American Speech Quarterly*, which has subscribers throughout the world. I shall also take your magazine to class and draw the attention of my students to the many fine articles in it.

MAMIE MEREDITH, English Department
University of Nebraska, Lincoln, Neb.

Unnecessary Reminder

Are you kidding, or did you really pay some guy \$5.00 for the idea in the November issue [p. 144] of putting a light on the car door to remind the driver to turn off his radio or heater?



As far back as I can remember, an awful lot of cars have been wired so that when the switch key is removed—bingo—all accessories are automatically shut off.

LEO REILLY, Kansas City, Mo.

Yes, but this holds true only for accesso-

ries wired into the ignition circuit. Parking, fog and back-up lights and some radios, heaters and other accessories not installed by the manufacturer may not be connected this way.

Flashlight Cells Won't Corrode

Your article on home flashlight repairs [Dec. '52, p. 226] was excellent and interesting. One thing struck me as old-fashioned, though. The danger of having cells stick or corrode in flashlight cases has been virtually eliminated by the sealed-in-steel Ray-O-Vac leakproof cell.

ART SWENSON,
Ray-O-Vac Co., Madison, Wis.

Jim Williams Not His Man

Being a Jim Williams fan, I was much interested in the article about him in the September issue [p. 90]. I have been told that before he started cartooning he worked on a ranch near Sterling City, Tex., and there gathered much of his cowboy lore. Is



this true? I also have heard that for a while he worked in the Texas & Pacific Railway's machine shops in Big Spring, Tex. Please set me right on this so I can continue or cease to brag on his Texas background.

W. L. EDMOND, Waco, Tex.

Jim says he's not the man you ask about; that he never worked in Texas. But he also says that he had such a riotous youth and worked in so many other places that people are constantly asking him questions like yours.

Model T Clearing House

When your August issue came out with that article about buying an antique car [p. 115], I had been planning for some time to buy and fix up a Model T. Once I got started, I had trouble getting stopped.

Antiques are just starting to blossom in this territory. Several prospective collectors started to talk to me about buying cars and parts for them. Before we knew what was



To the man who wants to enjoy
an **ACCOUNTANT'S** CAREER



IF you're that man, here's something that will interest you.

Not a magic formula—not a get-rich-quick scheme—but something more substantial, more practical.

Of course, you need something more than just the desire to be an accountant. You've got to pay the price—be willing to study earnestly, thoroughly.

Still, wouldn't it be worth your while to sacrifice some of your leisure in favor of interesting home study—over a comparatively brief period? Always provided that the rewards were good—a salary of \$4,000 to \$10,000?

An accountant's duties are interesting, varied and of real worth to his employers. He has *standing*!

Do you feel that such things aren't for you? Well, don't be too sure. Very possibly they *can* be!

Why not, like so many before you, investigate LaSalle's modern Problem Method of training for an accountancy position?

Just suppose you were permitted to work in a large accounting house under the personal supervision of an expert accountant. Suppose, with his aid, you studied accounting principles and solved problems day by day—easy ones at first—then more difficult ones. If you could do this—and could turn to him for advice as the problems became complex—soon you'd master them all.

That's the training you follow in principle under the LaSalle Problem Method.

You cover accountancy from the basic Principles right up through Accountancy Systems and Income Tax Procedure. Then you add C. P. A. Training and prepare for the C. P. A. examinations.

As you go along, you absorb the principles of Auditing, Cost Accounting, Business Law, Statistical Control, Organization, Management and Finance.

Your progress is as speedy as you care to make it—depending on your own eagerness to learn and the time you spend in study.

Will recognition come? The only answer, as you know, is that success *does* come to the man who is really *trained*. It's possible your employers will notice your improvement in a very few weeks or months. Indeed, many LaSalle graduates have paid for their training—with increased earnings—before they have completed it! For accountants, who are trained in organization and management, are the executives of the future.

Write For This Free Book

For your own good, don't put off investigation of *all* the facts. Write for our free 48-page book, "Accountancy, The Profession That Pays." It'll prove that accountancy offers brilliant futures to those who aren't afraid of serious home study. We'll also include "Ten Years' Promotion in One"—a book which has helped many men. Send us the coupon *now*.

Over 3500 Certified
Public Accountants among
LaSalle alumni

Other LaSalle Opportunities

- ☐ Higher Accountancy
- ☐ C.P.A. Coaching
- ☐ Bookkeeping
- ☐ Law: LL.B. Degree
- ☐ Business Management
- ☐ Salesmanship
- ☐ Traffic Management
- ☐ Foremanship
- ☐ Industr'l Management
- ☐ Stenotypy
(Machine Shorthand)

LASALLE EXTENSION UNIVERSITY A CORRESPONDENCE INSTITUTION

417 S. Dearborn St. Dept. 383-HR Chicago 5, Ill.

I want to be an accountant. Send me without obligation, "Accountancy, the Profession that Pays"—also "Ten Years' Promotion in One."

Name.....Age.....

Address.....

City, Zone & State.....



MARCH 1953

going on, we were running a clearing house for buyers and sellers of cars and parts.

M. L. MECHAM, Huron, S. D.

See page 201 for another Model T story.

Old Cars Had Clearance

In your article "Buick Sets New Style for 1953" [Oct. '52, p. 100], you say: "The whole car has been lowered an inch and a half . . . Actually, there is no real point in having cars as high as they are."

Now, do you really believe that? I realize that the Buick Skylark is primarily a road car, and a low-slung look adds raciness, but clearance need not be sacrificed to the extreme that it is.

The famous road cars of the past (Duesenberg, Packard, Stutz) had roadability, ride and cornering qualities that would leave the Buick Skylark in the nearest dump—and they had clearance.

JIM McCANN, San Francisco.

Drove Japanese Cars

I nearly keeled over upon seeing the article about Japan's automobiles in No-

vember's PSM [p. 136]. I'm back in the good old U.S. now, but I spent the last five years in Japan, and during those years I tried out a few of their autos. Your de-



scription fits them perfectly. One auto you neglected to mention is the battery-powered Tama.

I am enclosing a photo of me [above] on a Japanese Tokatsu motorbike.

ROHM W. HOLLINGSWORTH,
Mishawaka, Ind.

Vip's HAIR TYPES



SHAGGY DOG STORY—very funny, unless the joke is on *your* hair! For *all-day* grooming depend on new Fitch IDEAL Hair Tonic. Secret ingredient gives *naturally-neater* look—without greasy goo or cream. Helps scalp feel better while making thin hair look *thicker*—thick hair stay slicker! No lingering odor. New tonic action relieves dry, itchy scalp... and regular care with new Fitch IDEAL Hair Tonic helps keep hair free of loose, ugly dandruff!

Get New Fitch
Ideal
Hair Tonic



Do You Know?



Why *Nash* cars are built like modern trains, buses and airliners . . .

LIKE TODAY'S AIRLINERS, the modern bus, and streamlined train, Nash cars are built with body and frame as one integral unit! Frame, floor, roof, girders and even the steel panels of the body itself are a single welded structure, each part adding strength and rigidity to every other part. Engineers call this "stressed skin" construction. Nash calls it "Airflyte Construction", and has built almost a million cars utilizing this advanced design principle.

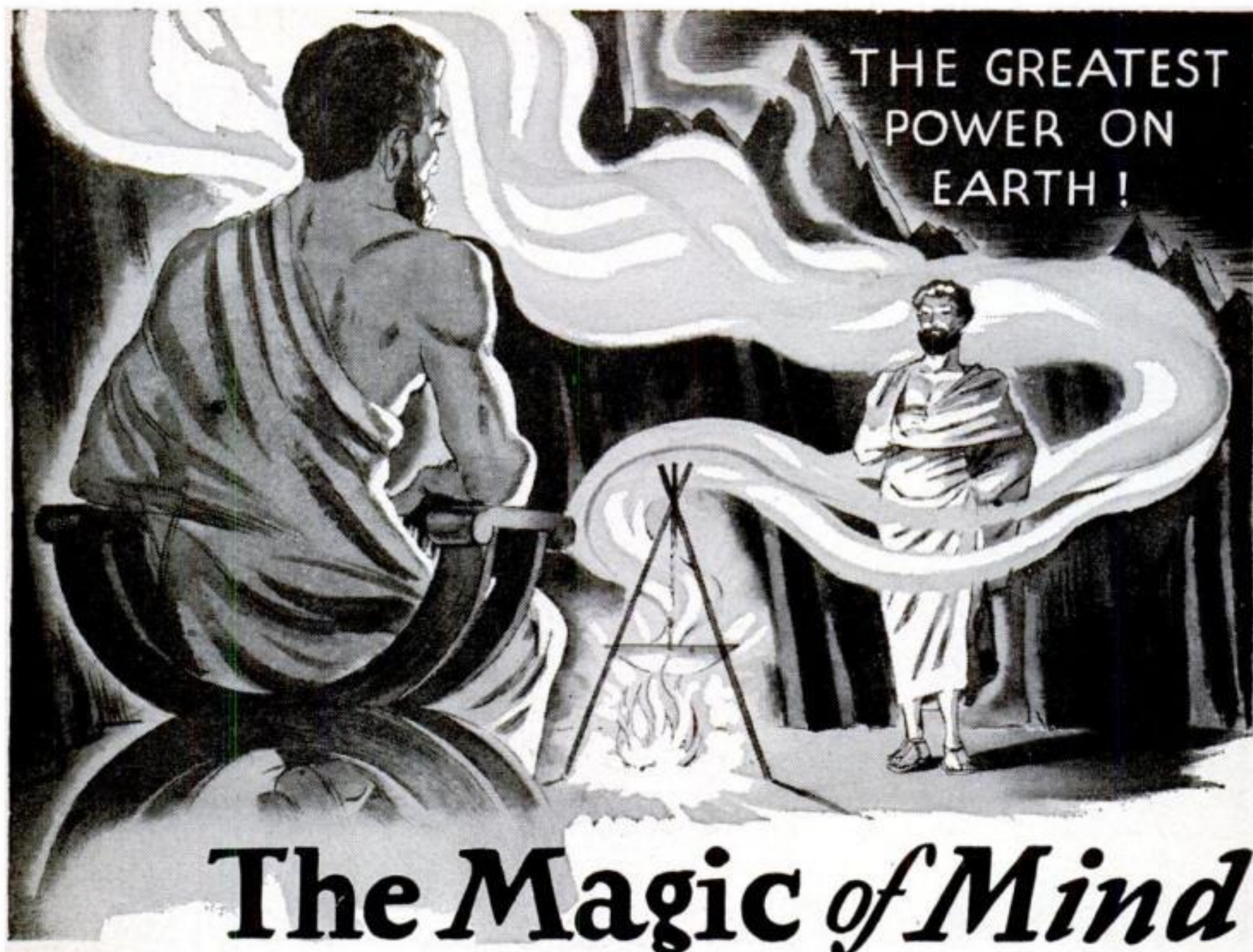
Here's why Nash uses Airflyte Construction: engineering tests prove that Airflyte Construction has more than twice the torsional rigidity (or resistance to twisting) of ordinary separate body-and-frame construction—and provides far greater safety to passengers by literally surrounding them with a

protective steel cradle. Airflyte Construction eliminates almost two-thirds of the frame weight—resulting in greater performance and fuel economy. Airflyte Construction absorbs road shocks within the body structure, and eliminates body-bolt rattles—to give new concepts of quietness and comfort.

You can't appreciate the difference that Airflyte Construction makes until you drive a Nash. Your nearby Nash dealer invites you to see the beautiful new Nash Airflyte for 1953 and "road-test" this most modern of motorcars yourself.

Nash Motors

Division Nash-Kelvinator Corporation,
Detroit 32, Michigan



The Magic of Mind

WERE the great personages of the past victims of a stupendous hoax? Could such eminent men of the ancient world as Socrates, Pericles and Alexander the Great have been deluded and cast under the spell of witchcraft—or did the oracles whom they consulted actually possess a mysterious faculty of foresight? That the human mind can truly exert an influence over things and conditions was not a credulous belief of the ancients, but a known and demonstrable fact to them. That there exists a wealth of infinite knowledge just beyond the border of our daily thoughts, which can be aroused and commanded at will, was not a fantasy of these sages of antiquity, but a dependable aid to which they turned in time of need.

It is time you realized that the rites, rituals and practices of the ancients were not superstitions, but subterfuges to conceal the marvelous workings of natural law from those who would have misused them. Telepathy, projection of thought, the materializing of ideas into helpful realities, are no longer thought by intelligent persons to be impossible practices, but instead, *demonstrable sciences*, by which a greater life of happiness may be had.

One of America's foremost psychologists and university instructors, says of his experiments with thought transference and the powers of mind—"The successes were much too numerous to be merely lucky hits and one can see no way for guessing to have accounted for the results." Have you that open-minded attitude of today which warrants a clear, positive revelation of the

facts of mind which intolerance and bigotry have suppressed for years? *Advance with the times*; learn the truth about your inherited powers.

Let this free book explain

The Rosicrucians (NOT a religious organization) have been leaders in introducing the ancient wisdom of mental phenomena. Established throughout the world for centuries, they have for ages expounded these truths to those thinking men and women who sought to make the utmost of their natural faculties. Use the coupon below—avail yourself of a pleasing book of interesting information which explains how you may acquire this most *unusual* and *helpful* knowledge.

The ROSICRUCIANS
(A M O R C)

USE THIS COUPON

Scribe: P.C.S.
The Rosicrucians, AMORC
San Jose, California

I am sincerely interested in knowing more about this unseen, vital power which can be used in acquiring the fullness and happiness of life. Please send me, without cost, the book, "THE MASTERY OF LIFE," which tells me how to receive this information.

Name _____
Address _____ State _____



INVENTORS



Learn how to protect your invention. The U. S. Patent Laws provide that any new and useful art, machine, article of manufacture, or composition of matter, or any new and useful improvement thereof, may be patented if the act of invention is involved. Therefore, every inventor with a valuable invention should take advantage of the Patent Laws and proceed for patent protection in order to safeguard his rights.

A patent gives the inventor the exclusive right to prevent others from making, using, or selling the invention claimed in the patent for a period of seventeen years.

The Patent Laws were enacted for the benefit of the inventor to give him protection for the features of his invention which are patentable. These features must be properly and concisely set forth and claimed in a formal application for patent, in order to comply with the requirements of the Patent Laws. For that reason, unless the inventor is familiar with patent matters, he should engage a competent registered patent attorney or agent to represent him. We are registered to practice before the U. S. Patent Office and are prepared to serve you in the handling of your patent matters.

A specially prepared booklet entitled "Patent Guide for the Inventor", containing detailed information with respect to patent protection and procedure, together with a "Record of Invention" form will be promptly forwarded to you without obligation upon request.

CLARENCE A. O'BRIEN & HARVEY JACOBSON

Registered Patent Attorneys

32 - C DISTRICT NATIONAL BUILDING

WASHINGTON 5, D. C.

MARCH 1953 15

NEW BODIES FOR OLD!



**I've Made New Men Out of
Thousands of Other Fellows...**

**"Here's what I did for
THOMAS MANFRE...and
what I can do for you!"**

—Charles Atlas

GIVE me a skinny, second-rate body — and I'll cram it so full of handsome, bulging new muscle that your friends will grow bug-eyed!...I'll wake up your sleeping energy and make it hum like a high-powered motor! Man, you'll feel and look different! You'll begin to **LIVE!**

**Let Me Make YOU a NEW MAN—
IN JUST 15 MINUTES A DAY**

You wouldn't believe it, but I myself used to be a 97-lb. weakling. Fellows called me "skinny." Girls made fun of me behind my back. THEN I discovered—"Dynamic Tension." And it turned me into such a complete specimen of MANHOOD that today I hold the title "THE WORLD'S MOST PERFECTLY DEVELOPED MAN."

My Secret—"Dynamic Tension"

When you look in the mirror and see a healthy, strapping fellow smiling back—you'll realize how fast "Dynamic Tension" GETS RESULTS! "Dynamic Tension" is the easy, NATURAL method you can practice in the privacy of your room—JUST 15 MINUTES EACH DAY—while your chest and shoulder muscles begin to swell, ripple . . . those arms and legs of yours bulge . . . and your whole body starts to feel full of zip and go! And you'll be using the method which many great athletes use for keeping in condition—prize fighters, wrestlers, baseball and football players, etc.

FREE My 32-page Book—Not \$1. or 10c — But **FREE**

Send NOW for my famous book, "Everlasting Health and Strength." 32 pages, crammed with photographs, valuable advice, answers to many vital questions.

This book is a real prize for any fellow who wants a better build. Yet I'll send you a copy absolutely **FREE**.

It may mean the turning point in your whole life! Rush the coupon to me personally: **CHARLES ATLAS, Dept. 13, 115 East 23 St., New York 10, N. Y.**



**CHARLES ATLAS, Dept. 13,
115 East 23rd St., New York 10, N. Y.**

Send me—absolutely **FREE**—a copy of your famous book, "Everlasting Health and Strength"—32 pages, crammed with actual photos, advice. I understand this book is mine to keep, and sending for it does not obligate me in any way.

Name.....Age.....
(Please print or write plainly)

Address.....

City.....State.....



323 Different STAMPS — 25¢



includes the
most famous
stamp ever
issued: SPAIN

**GOYA
NUDE**

What a collection! 323 all-different stamps from all over the world, including hard-to-get stamps like: **ALBANIA**—Churchill, F.D.R. Liberation; **UNITED NATIONS**—very first stamp issued; **MONACO**—giant Pope Pius triangles; **GERMANY**—Allied Military Gov't; **GREAT BRITAIN**—War Propaganda Set of 8; **KOREA**—Pyongyang Provisionals; **U.S.A.**—\$1 1931 top value; plus hundreds more at the amazing bargain rate of 13 stamps for 1¢! It's a regular \$3.50 value—yet yours for 25¢ with our Bargain Approvals. Money back if not delighted. And we'll include, **FREE**, our 32-page "Midget Encyclopedia of Stamps"—plus Stamp Identifier and Dictionary.

SEND 25¢ TODAY

ASK FOR LOT EH-7

ZENITH CO., 81 Willoughby St., Brooklyn 1, N.Y.



**LEARN
TO DANCE \$1.00**

Why be a lonely, unpopular wall-flower? Learn all the smart dances from the most modern to the old favorites—at home, in private without teacher, music or partner. So simple even a child can learn quickly. Tap dancing, Waltz, Collegiate, Samba, Rhumba, Jitterbug and many others, including illustrations. Complete course only \$1.00. Also, delightful old square dances with illustrations for \$1.00. Get each Separate or both for \$1.98. If you order both take your choice of **FREE-DREAM BOOK** or **LOVE LETTERS**. C.O.D. orders 25¢ extra and Postage.

Superior professional taps, both toes and heels \$2.98 prepaid or C.O.D. plus shipping charges. State size, large or small.

ROLLDEX, P. O. Box 516, Dept. D-85, Safety Harbor, Fla.

HULA DANCER • GETS BIG FISH

Small but mighty, this deadly open-water hooker is heavy enough to make long casts easier. Sinks and runs medium depth. Special "lip" gives special action—fools the wise ones. 5/8 oz. At your dealer. \$1.25 ea.



FRED ARBOGAST & Co., Inc., 2373 W. North St., Akron 3, Ohio

FREE WRITE TODAY FOR YOUR BIG FREE ARBOGAST COLOR CATALOG—FULL OF PICTURES OF CATCHES

\$\$\$ FIBERGLASS \$\$\$

Unlimited opportunity. Make big money in spare time at home. No experience needed. Do laminating—color—moulding etc. Build and repair boats—trailers—models—aircraft—car bodies—furniture—1001 uses. Big fiberglass kit contains instructions—all tools—materials, includes glass mat, catalyst, resins, glass cloth, everything you need. Only \$5.00 F.O.B. Los Angeles. Shipping wt. app. 5 lbs.

Dept. PS-3 Plasti-Glas Company, 1701 W. Magnolia, Burbank, Calif.

POWER MOWERS & KITS

**FREE
PLANS**

**LOW FACTORY
PRICES DIRECT
TO YOU**

**Build your own quality
mower with our LOW
COST KITS. Parts.**

**3 & 4
Wheel
Model**

**4
Wheel
Direct
Drive**

America's Finest Power Mowers completely assembled in 3 and 4 wheel models. Belt or direct drive. 18" and 20" sizes. Nationally known make engine. Latest improved features, sturdy construction and money back guarantee fully described in color folder. Write Today.

3-WHEEL KIT NO. T-800



TRIANGLE MANUFACTURING CO., Box S-17, Fort Scott, Kansas

INVENTORS

If you believe that you have an invention, you should find out how to protect it. The first step is to have a search made of the prior pertinent U. S. patents. If a report on this search indicates that the invention appears patentable you can apply for a patent, and the specifications and claims should be prepared.

The firm of McMorrow, Berman & Davidson, with offices in Washington, D. C., is qualified to take the necessary steps for you. We can make a preliminary search on your invention, advise you whether we think it can be patented, and prepare your application for

patent.

Unless you are fully familiar with the U. S. Patent Laws, we recommend that you engage the services of a Registered Patent Attorney to protect your interests. The patent laws are *your* laws. A patent gives you the right to prevent others from making, using or selling the invention claimed in your patent for a period of 17 years.

Use these patent laws for your protection. Investigate whether your invention can be patented. If you have what you believe to be an invention, we suggest that you have this firm make a search for you.

Send for a copy of our Patent Booklet entitled "How To Protect Your Invention," containing information about patent protection and patent procedure. Along with this we will also send you an "Invention Record" form, for your use in writing down and sketching details of your invention. We will mail them promptly. No obligation. They are yours for the asking.

McMORROW, BERMAN & DAVIDSON

Registered Patent Attorneys

PATENTS • COPYRIGHTS • PATENTS

142-G VICTOR BUILDING, WASHINGTON 1, D. C.

Build A FIREPLACE



around this scientifically designed steel form which also provides circulating heat and assures perfect Fireplace operation.

free folder tells how

TELLS HOW TO BUILD YOUR FIREPLACE—Step by Step

- Foundation
- Steel heat-circulating form
- Cold and warm air ducts
- Chimney and flue construction
- Mantel or decorative front

ASK FOR BOOK
"100 FIREPLACE IDEAS"

Beautiful fireplace designs modern and conventional—shows artistic use of available material.

Enjoy circulating heat and the radiance of an open fire in your Home, Playroom, Cottage or Camp.



Foundation



Fireplace form set on foundation includes firebox, damper, down draft shelf and smoke dome.



Brick, stone or cement block can be used around the form.

- ☐ Send free directions for building heat-circulating fireplace.
- ☐ Send Book "100 Fireplace Ideas." Pocket size, book, sent free.
- ☐ Send larger book, 8½ x 11, beautifully illustrated, 25c.
- ☐ Send outdoor fireplace folder with 10 beautiful designs Free.

Name

Street

City

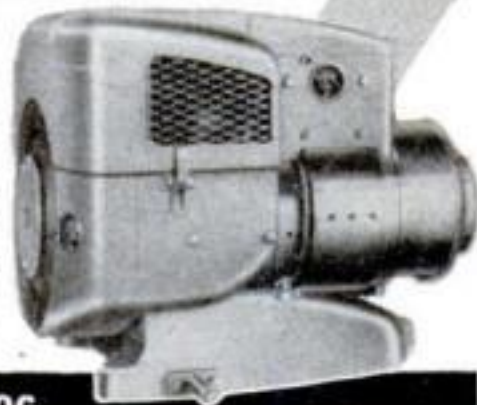
Sold Through Leading Building Materials Dealers

PRICE FIREPLACE HEATER & TANK CORP.
192 W. Austin Street, Buffalo 7, New York

ELECTRICITY *Anywhere*

FOR PORTABLE, EMERGENCY OR HOME USE

ONAN Electric Plants generate 110-volt, 60-cycle current for homes, farms, cabins and resorts beyond the highline. Lightweight, portable plants cut costs, speed work for contractors. Standby plants protect hospitals, homes, civil defense units against power failure. 400 to 55,000 watts. Gasoline or Diesel-powered. Priced from \$219.00.



WRITE FOR CATALOG

D. W. ONAN & SONS INC.
6749 UNIV. AVE., S. E., MINNEAPOLIS 14, MINNESOTA



100% PROTECTION

TEAR GAS

**A REAL SURE-FIRE SELLER!
THUGS AND THIEVES BEWARE!**

Here is a tear gas pencil gun which discharges smothering clouds of tear gas to instantly stop, stun and incapacitate the most vicious man or beast. A safe and effective substitute for dangerous firearms. No permanent injury. Needed in Stores, Banks, Autos and Homes, everywhere to protect Life and Property. No skill required. Handle our tear gas as a side line and you'll soon give it full time. For a quick start send \$4.25 for complete demonstrator outfit consisting of an Automatic Pencil Gun with 10 demonstrators and 3 powerful Tear Gas cartridges fully guaranteed. Many thousands now in use. Order your outfit today. Not sold to minors. Hagen Supply Corp. Dept. A503 St. Paul 4, Minn.

WALKIE TALKIES \$4.99 Set of 2

POCKET SIZE

—ELECTRONIC VOICE POWERED



No tubes, batteries, adjustments, license or permit needed! Guaranteed to work anywhere up to 1/4 mile with extra wire. Swell for room to room—garage to house, etc! Your own private, talk-listen phone. Not war surplus. Brand new. Guaranteed. Two complete units with wire

—READY TO USE!
SEND \$1.00 deposit and pay postman \$3.99 plus postage charges or send \$4.99 for postpaid delivery. Sold only by mail from:

MIDWAY COMPANY, Dept. WPS-3 Kearney, Nebraska

HE-MAN VOICE!

STRENGTHEN your voice this tested scientific way. Yes—you may now be able to improve the POWER of your speaking and singing voice . . . in the privacy of your own room! Self-training lessons, mostly silent. No music required.

FREE BOOK Write TODAY for Eugene Feuchtinger's great booklet "How to Develop a Successful Voice." It's absolutely FREE! You must state your age. Booklet mailed postpaid in plain wrapper. No salesman will call. Send your name and age RIGHT NOW! Perfect Voice Institute, 210 S. Clinton St., Studio CX-1, Chicago 6, Ill.



FM-AM RADIO

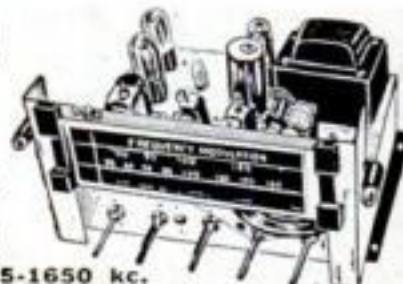
CUSTOM BUILT
HIGH FIDELITY

By "SOUNDCRAFTERS"

13 tubes give you features and power to spare. FM tuning range 88-108 megacycles. AM tuning range 535-1650 kc. 14 Watt 6V6 Push-Pull Amplifier. Added RF Tube on FM. Separate input jacks for crystal and reluctance pickups. Its wide range, 30-15,000 cycles, has an excellent Tone Control System using separate Bass and Treble tone controls. Tuner and Amplifier on one chassis makes installation very easy. AM Band has interstation noise control suppression. Phono Motor outlet provided. COMPLETE, READY TO PLUG IN. Including all tubes, multi-colored slide rule dial, AM loop antenna, knobs, etc. Magnavox 12" Alnico PM Speaker \$7.50 additional. Size 12¾x10½x7¾ high. RCA licensed. New merchandise. Original factory cartons. Immediate delivery. Fully Guaranteed. Order yours today by mail or come in for a free demonstration. \$10.00 on C.O.D. orders. Record changers for above units available. Information free.

JAN ELECTRONIC DIST. CO.

222 Fulton St. Dept. S
NEW YORK 7, N. Y.



\$59.95

List \$139.50

LEARN ELECTRICITY AND ELECTRONICS ON REAL EQUIPMENT IN THE GREAT SHOPS OF COYNE



RADIO-TELEVISION A GREAT BOOMING INDUSTRY

**ALL TRAINING
GIVEN IN CHICAGO
TRAINING SHOPS**
Practical Technical
method gives practical
experience on
massive outlay of
equipment plus necessary
technical
training. No advanced
education or
experience needed.



The tremendous growth of this new field is almost unbelievable. TV has been given the "go-ahead" in 1227 new communities, with 1845 new stations to be built. Unusual opportunity to get in on ground floor. RADIO-TELEVISION and ELECTRONICS are vital to our Defense Program. And they offer a world of opportunities for a real future when the emergency is over. Train quickly on actual equipment at Coyne by practical-technical methods. Get big Free Book today.

ELECTRICITY—

The Power Behind Our Industrial Program

A great opportunity field and vital to Defense. Thousands of trained Electrical and Electronics men needed in good jobs and a real future. Why be satisfied with a "no future" job? Get Free Book that tells how thousands have prepared quickly for Electricity and Electronics at Coyne.

TRAIN QUICKLY AT COYNE FOR VITAL FIELDS

ELECTRICITY—RADIO-TELEVISION—ELECTRONICS—VITAL in Industry and Armed Forces. TRAIN QUICKLY for better rating, if drafted—vital job in Industry, if not. Trained men whether 17 or up to 45 needed. Prepare now for steady, well paid, essential jobs in A FIELD THAT ALSO OFFERS A REAL FUTURE WHEN THE EMERGENCY IS OVER.

FINANCE PLAN— START NOW—PAY LATER

Enroll now, pay most of tuition later. Monthly payment plan especially designed for K-Vets. If you need part-time work to help out with living expenses while at Coyne, we'll help you get it. Special tuition plan for men of Draft Age.

**APPROVED
FOR
VETERANS**



1 You are
TOLD the
how and why
of each job.



2 You're shown
how to do typical
jobs by
trained instructors.



3 You DO practical
job YOURSELF
on equipment.

Mail Coupon for Big Free Book

Whether you prefer Electricity or Television-Radio, train on actual equipment, at Coyne. Fill in and mail coupon TODAY. Paste it on a postcard if you wish. A big fully illustrated booklet and complete details will come by return mail. No salesman will call.

B. W. COOKE, President

COYNE SCHOOL
A TECHNICAL TRADE INSTITUTE
CHARTERED NOT FOR PROFIT
Established 1899
500 S. Paulina St., Chicago 12
Chicago 12, Illinois

ELECTRICITY ★ TELEVISION ★ RADIO ★ REFRIGERATION ★ ELECTRONICS

B. W. COOKE, President
COYNE SCHOOL
500 S. Paulina St., Chicago 12
Dept. 33-73H

Send your BIG FREE BOOK and details of your training offer. This does not obligate me and no salesman will call. I am interested in

☐ ELECTRICITY ☐ TELEVISION-RADIO

NAME.....

ADDRESS.....

CITY.....STATE.....

MARCH 1953 19

BIG MONEY

in your hands!



BE YOUR OWN BOSS! Men who are determined to get ahead in something for themselves will find this opportunity hard to beat! Where else can a man turn his own labor so quickly and easily into **BIG MONEY!** Earn as high as \$50 and more a day sanding floors with an easy-to-run American Machine—and **YOU ARE BOSS.** Prospects everywhere—old and new homes and remodeling. Pleasant indoor work—steady the year round. No schooling—no experience needed. Age makes no difference—men 18 to 80 are active and successful. Send coupon for "money-making" booklet entitled "Opportunities in Floor Surfacing"—enclose 25c in coin or stamps to cover handling.



AMERICAN FLOOR MACHINES

SEND

The American Floor Surfacing Machine Co.
532 So. St. Clair St.
Toledo 3, Ohio

Enclosed find 25c in stamps or coin for booklet "Opportunities in Floor Surfacing", telling me how I can start my own floor sanding business.

Name

Street

City State

OZARKA

BOAT KITS



Exclusive oak laminated construction . . . gives strongest boat hull afloat... makes boat easier to build



22 MODELS • A BOAT FOR EVERY NEED

\$39⁵⁰
and up

NEW 40-PAGE CATALOG.

Full line of Ozarka Boat Kits and accessories. Page after page of wonderful kits. Send 25c for catalog.



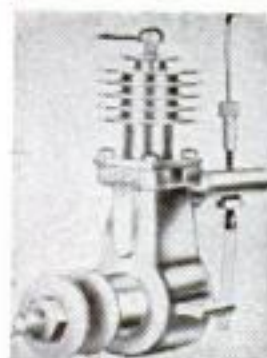
OZARKA, INC. 733 Borden, Woodstock, Illinois

OIL FROM THE PUBLIC LANDS

Get the amazing story of how U. S. citizens can file for oil rights on public land in the West. Profits made as high as \$250,000 for \$250; \$11,000 monthly for \$200. We select lands in possible oil areas, show you how to file. Send for free booklet.

CALIFORNIA LEASE CO.

7075-PS Hollywood Blvd., Los Angeles 28, Calif.



Our 600th Advertisement
REAL DIESEL ENGINE

\$3.95 • for planes, boats, midget cars
• 7500 RPM; 1/7 HP; ht. 3 1/2";
wt. 5 oz.

• precision machined for smooth operation
You just can't beat this price for a precision diesel engine! Streamlined, compact, easy to install. Thousands of satisfied users all over the world. Fast delivery if you ORDER TODAY! Send \$3.95 plus 25c postage.

Gotham Hobby Corp. Dept. S, 107 E. 126th St.
New York 35, N.Y.



make your own Gems **29⁵⁰**
F.O.B.

The Gem Maker comes complete with all necessary equipment, including a super-charged diamond blade for sawing, and all wheels for grinding, shaping and polishing; also complete instructions. The complete equipment as shown, less motor and belt, for only \$29.50, f.o.b. Burlington, Wisconsin. Write today for information and literature.

B & I MANUFACTURING CO.
Dept. S Burlington, Wis.



WATCHMAKING FREE Sample Lesson

Shows how to clean watches by hand or machine. It's fun . . . profitable too! An exciting hobby or fascinating career. Chicago School of Watchmaking offers complete home study training in professional watch repairing at amazing low cost. All equipment included at no extra charge. No experience needed. Send coupon today! No obligation.

CHICAGO SCHOOL OF WATCHMAKING

2330 Milwaukee Ave., Dept. 433, Chicago 47, Ill.

SEND FREE SAMPLE LESSON

☐ Veteran

Name

Address

City Zone State

NOW! DTI's GREATEST TRAINING OFFER IN 22 YEARS!

IT'S NEW! IT'S PRACTICAL! IT'S DIFFERENT!

DTI's NEW 1953 HOME TRAINING PROGRAM

has been re-designed to
**GET YOU FURTHER
FASTER**
in



21 INCH

NOW . . . as a part of our training, you build and keep this outstanding 21-inch—steady—sharp image—D.T.I. quality-engineered TV set. Can be readily converted to receive U.H.F.

TELEVISION RADIO AND ELECTRONICS



NEW 5-INCH "SCOPE"

D.T.I. now also makes it possible for you to build and keep this big 5-inch commercial-type oscilloscope, one of the most useful and versatile pieces of testing equipment used in television today. In fact, it's almost a "must" for the serious-minded TV technician.

IMPROVED HOME MOVIES

D.T.I.'s new 1953 Master Home Training Program provides you with the use of 16 Hollywood-produced reels of film and a 16 mm. motion picture projector to speed your progress.

MILITARY SERVICE!

If you're subject to military service, the information we have for you should prove very helpful.

ONE OF AMERICA'S FOREMOST
TRAINING CENTERS

Established —
1931



MULTIMETER



HOME MOVIES



DeFOREST'S TRAINING, INC.

AFFILIATED WITH

DeVRY Technical INSTITUTE
CHICAGO 14, ILLINOIS

Here, we believe, is one of the most **PRACTICAL** . . . most **HELPFUL** . . . most **EFFECTIVE** home training programs ever offered to prepare you to earn real money in America's amazing multi-billion dollar opportunity field of **TELEVISION-RADIO-ELECTRONICS**. Now, at home, you can get real practical experience from working on **high quality, FULL SIZE Commercial type equipment**—much like you'll handle when later working in the TV field. Here's the **REAL THING**—nothing else like it!

You get interest-packed lessons. You get 21 shipments of parts—working over 400 construction and test procedures that include building and keeping D.T.I.'s big, new, 5-INCH Oscilloscope and a jewel bearing Multimeter—followed by building D.T.I.'s wonderful new 21-inch tube TV set. You get shop method training—right at home. And to help you understand all-important fundamentals **FASTER . . . EASIER** . . . you use D.T.I.'s unique and effective **HOME MOVIES**. Then upon completing your training, D.T.I.'s Employment Service helps you **GET STARTED** in a good job or your own sales and service business. Get the facts—including the thrilling story of the opportunities ahead in Television.

OTHER TRAINING PROGRAMS AVAILABLE

D.T.I. also offers home training in (a) Television-Radio-Electronics—but without the TV set, (b) full time training in D.T.I.'s big **CHICAGO TRAINING LABORATORIES**—one of the nation's finest. Mail coupon today.

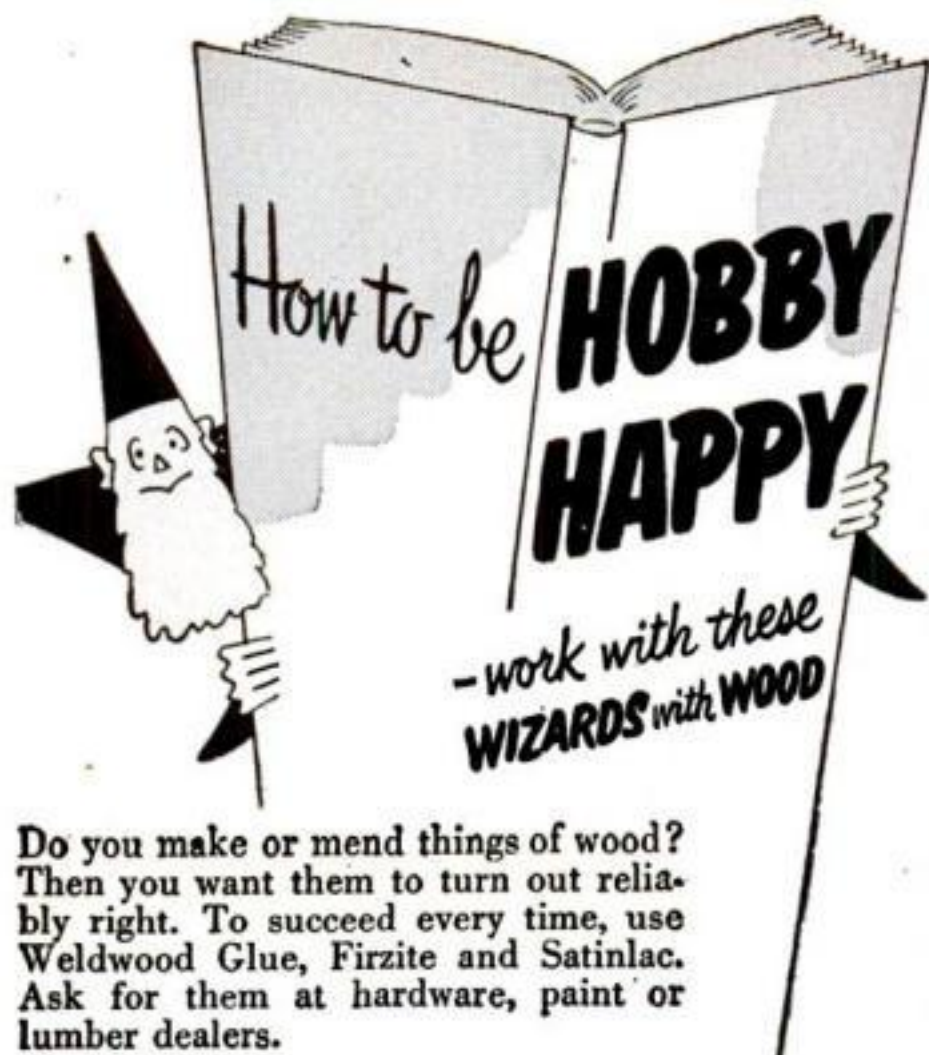
Get this publication FREE!

DeFOREST'S TRAINING, INC. Dept. PS-3J
2533 N. ASHLAND AVE., CHICAGO 14, ILL.

I would like your Opportunity News Bulletin showing "89 Ways to Earn Money in Television-Radio-Electronics"; also, complete facts about the training opportunity made possible by your organization.

Name _____ Age _____
Address _____ Apt. _____
City _____ Zone _____ State _____

**89 WAYS
TO
EARN
MONEY**
IN TELEVISION
RADIO-ELECTRONICS



Do you make or mend things of wood? Then you want them to turn out reliably right. To succeed every time, use Weldwood Glue, Firzite and Satinlac. Ask for them at hardware, paint or lumber dealers.

Gets that blond or pickled effect—

Produce those magical "woody" effects—on hard wood or soft, plywood or solid lumber with White Firzite. For light pastel tones, tint with Colors-in-Oil. (On fir plywood stain jobs, tame that wild grain with Clear Firzite.)



WHITE FIRZITE®

Gets that Natural-Wood Finish

—without shellac or varnish. On furniture, panelling or woodwork, there's nothing like Satinlac. Brings out natural grain and color beauty of any plywood or solid wood. Avoids that "built-up look; will not turn yellow or darken with age. "Water-clear," easy to brush or spray, dries ready for next coat in 2 or 3 hours.



SATINLAC®

The Wood Glue you can rely on!

To make things or fix things, use Weldwood Glue for all wood-to-wood bonds. Makes joints stronger than the wood itself. Mixes easily with water. Stain-free, rot-proof...highly water-resistant!



WELDWOOD®
PLASTIC RESIN GLUE

Pints, Quarts,
Gallons

United States Plywood Corporation,
Dept. 194 55 West 44th St., New York 36, N.Y.

Send me free leaflets on Weldwood Glue, Firzite and Satinlac.

NAME _____

ADDRESS _____

Yours ... A Blazing NEW Gem ... Blue-White and Perfect!

As Little as **\$10** a carat

Dazzlingly brilliant... harder than steel...brilliantly blue white... here is the final triumph of science over Nature! Yes, after years of study... thousands of experiments... International Gem Corporation now brings you an exciting, new, amazing gem... the most beautiful, the most perfect science has ever produced. Not to be confused with earlier advertised soft and yellow synthetics, this amazing gem is unbelievably, richly BLUE WHITE... THE COLOR NATURE RESERVES FOR ONLY HER MOST PRECIOUS DIAMONDS! Every gem is registered... WARRANTED FOR A FULL 10 YEARS against scratching! Money back guarantee! Full 58 faceted unset gems, \$10 per carat plus 20% tax. One carat gem set in 14K yellow or white gold man's or woman's setting, \$25 plus 20% tax. WRITE FOR FREE, FULLY ILLUSTRATED CATALOG OF GEMS AND SETTINGS.

INTERNATIONAL GEM CORPORATION
18 John Street New York 38 N.Y.

GO PLACES

LEARN ANOTHER
LANGUAGE
EASILY — QUICKLY
by **LINGUAPHONE**

IN 20 MINUTES A DAY

World's-Standard CONVERSATIONAL METHOD

FRENCH SPANISH GERMAN RUSSIAN JAPANESE NORWEGIAN

—any of 29 Languages

Are interesting job, travel, armed services', cultural opportunities passing you by because you speak only one tongue? Learn AT HOME the same natural, easy way you learned English long before you went to school. **YOU LISTEN**—you hear native men and women speak—you understand—**YOU SPEAK**. World-wide educational endorsement; over a million home-study students of all ages. **FREE BOOK** gives fascinating facts. **WRITE TODAY!** State if Veteran.

LINGUAPHONE INSTITUTE
147-03 Mezz., Rock. Plaza New York 20, N. Y.

POWER MOWERS AND KITS

Complete mower parts kit for either gasoline or electric power. Free plans and easy to follow instructions. Write today for descriptive folder, parts list and guarantee. Your name cast in metal platform of all "Custom" mowers no extra cost. Choice of 16", 18", 20" sizes, belt or direct drive. Many exclusive features. **ALL AT LOW FACTORY PRICES**

TEMCO MOWERS Springfield, Mo.

High School at Home

Many Finish in 2 Years

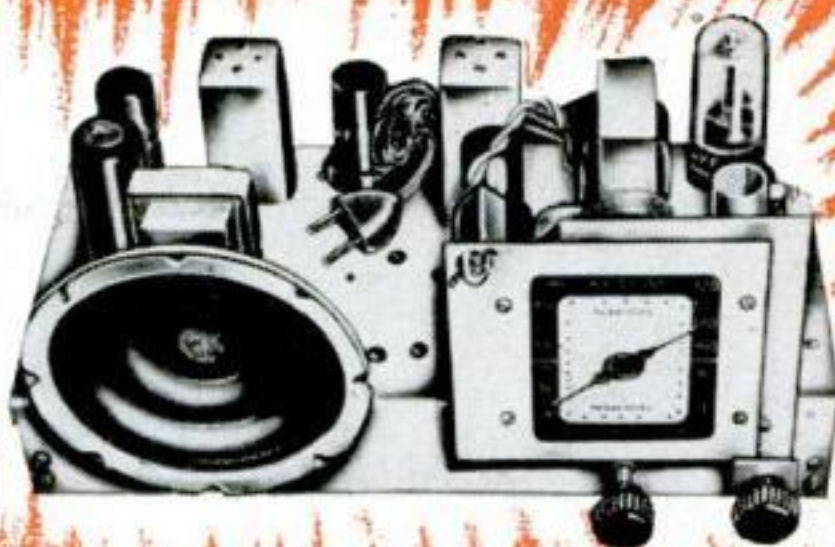
No classes. No time wasted going to and from school. Progress as fast as your time and abilities permit. Standard H. S. texts supplied. Thousands enroll each year in this 55-year-old school. Send for **FREE** descriptive booklet.

AMERICAN SCHOOL, Dept. H346
Drexel at 58th St., Chicago 37, Ill.

Without obligation, please send **FREE** descriptive booklet.

Name.....

Address.....



TRAIN **FASTER**—TRAIN **BETTER**—TRAIN **EASIER** IN 10 MONTHS—OR LESS—FOR **RADIO-TELEVISION**

Our 21st Year Training Men for Greater Incomes and Security in Radio-Television

I SEND YOU 18 BIG KITS

of Radio Television parts and equipment. Much of your training will be actual construction and experimentation . . . the kind of truly PRACTICAL instruction that prepares you for your Radio-Television career.



Frank L. Sprayberry
President
Sprayberry Academy
of Radio

NEW! NO OBLIGATION PLAN

You Have No Monthly Payment Contract to Sign
Pay For Your Training as You Earn and Learn

You can get into Radio-Television, today's fastest growing big money opportunity field, in *months* instead of years! My completely new "package unit" training plan prepares you in as little as 10 months or even less! *No monthly payment contract to sign—thus NO RISK to you!*

This is America's finest, most complete, practical training—gets you ready to handle any practical job in the booming Radio-Television industry. Start your own profitable Radio-Television shop . . . or accept a good paying job. I have trained hundreds of successful Radio-Television technicians during the past 21 years—and stand ready to train you, even if you have no previous experience! Mail coupon and get all the facts—FREE!

Valuable Equipment Included With Training

The new Sprayberry "package" plan includes many big kits of genuine, professional Radio-Television equipment. You perform over 300 demonstrations, experiments and construction projects. You build a powerful 6-tube 2-band radio set, multi-range test meter, signal generator, signal tracer, many other projects. All equipment and lessons are *yours to keep* . . . you have practically everything you need to set up your own profitable Radio-Television service shop.

Earn Extra Money While You Learn!

All your 10 months of training is IN YOUR HOME in spare hours. Keep on with your present job and income while learning. With each training "package" unit, you receive extra plans and "Business Builder" ideas for spare time Radio-Television jobs. New television stations everywhere, open vast new opportunities for trained Radio-Television Technicians—and those in training. If you expect to be in the armed forces later, there is no better preparation than practical Sprayberry Radio-Television training.

YOU BUILD the Television set and the powerful superhet radio receiver shown above IN ADDITION to the other test units shown here. (Many are not illustrated.)

Approved for Veterans under the G. I. Bill

SPRAYBERRY ACADEMY OF RADIO

111 NORTH CANAL ST.
Dept. 55-U Chicago 6, Ill.

**MAIL COUPON
TODAY!
NO OBLIGATION**

I invite you to get all the facts —
**FREE TO YOU 3 BIG
RADIO-TELEVISION BOOKS**

Rush coupon for my three big Radio-Television books: "How to Make Money in Radio-Television." PLUS my new illustrated Television Bulletin PLUS an actual sample Sprayberry Lesson —ALL FREE. No obligation and no salesman will call. Mail coupon NOW!

SPRAYBERRY ACADEMY OF RADIO, Dept. 55-U
111 North Canal St., Chicago 6, Ill.

Please rush to me all information on your 10-MONTH Radio-Television Training Plan. I understand this does not obligate me and that no salesman will call upon me. Be sure to include 3 books FREE.

Name..... Age.....

Address.....

City..... Zone..... State.....

MARCH 1953 23

Have a scale model of the home you want!

A new easy way to plan the house of your dreams, save thousands of dollars and have fun doing it.



Featured by the editors of LIFE

With a Scale Model Home Planning Set from the

American Technical Society, you can put your own home planning ideas into reality—right before your eyes with an accurate scale model ($\frac{1}{4}$ inch equals one foot). All the new ideas and practical guidance you get from the book "How to Plan a House", which is part of the set, will help you decide on exactly what you want your future home to look like—how big the rooms should be, where you need closets, which way the door should open, and even what color schemes to use in decorating. Avoid disappointment and unnecessary later expense or ever having to say, "now if I had it to do over again, I would have done it differently".

Then just put together the Hoyt Rust Scale Model Home Kit according to what you want your house to look like. You select the kind of doors, windows, stairs you want, because everything you need to put together a scale model home complete with miniature fireplace and die-cut furniture and fixtures, is included in the set.

EACH SET CONTAINS: A Hoyt Rust Model Home Kit including enough material to put together medium size (approximately 3 x 1 x 3 feet) scale-model miniature home • Sample floor plan • 10-ply Wall and Roof Material • Lithographed siding • Roofing • Flooring • Doors • Shutters • Brick • Stone • Built-ins • Die-cut furniture and fixtures • Patented steel clips and tool • 12 oil paints, thinner and brush. **PATENT No. 2607972—**



Examine both free 10 days, then pay \$3 plus postage, balance two equal monthly payments of \$3.40

Complete 1-2-3 instructions on how to erect and plan a house—a 584-page guide book of pictures and helpful suggestions showing: type of architecture, how to select a building lot, styling of a house, best types of materials for walls, partitions, floors, and roofs, planning floor and room plans, how to keep within your budget and many other subjects.



SEND IN COUPON FOR 10-DAY EXAMINATION

American Technical Society
848 E. 58th St., Dept. K-320, Chicago 37, Illinois

Please rush the following items checked below. If, after examination, I'm not completely satisfied I may return order without question for complete refund or cancellation of charge.

☐ **Home Planning Set** including complete ready-to-erect Scale Model Kit, plus 584-page book "How to Plan a House"—both for \$9.80.

Other aids for house guidance

☐ Concrete Block Construction for Home and Farm.....\$2.75
☐ Carpentry.....\$2.50
☐ How to Design and Install Plumbing.....\$3.95

I Prefer:

☐ If I keep order, bill me $\frac{1}{2}$ of the amount plus postage and then balance in two equal monthly installments. (Applies to orders of \$5.00 and more.)

☐ Send C.O.D.

☐ Cash, check or money order enclosed. Send prepaid.

Name.....

Address.....

City.....State.....

OIL FILTER REFILLS...10c



Here's News! Ordinary toilet paper makes an ideal oil filter. Laboratory tests prove it cleans oil faster and better than popular makes of filter elements. All you need is a simple set of **RETLIF ADAPTER PLATES**... and you can start using ordinary toilet paper rolls in your present oil filter. For proof and descriptive literature, send name and address to:

RETLIF CORPORATION, Dept. 115
1239 No. Highland Ave., Los Angeles 38, Calif.

FREE BIG SALES KIT

Make up to \$30.00 a day - Full Time or Part Time

Build a permanent "repeat" business of your own without one penny of investment! Sell John Neil Air-Cushion Shoes Direct from famous New England factory. Firestone Foamex cushions—complete line of men's dress, work, safety shoes! Women's and children's shoes. Fast deliveries from our mammoth stock department.

JOHN NEIL SHOE CO.
Dept. 55—Brockton 64, Mass.



DRAW The First Day!

NO LESSONS! NO TALENT!



New Amazing Invention—"Magic Art Reproducer." You can draw Your Family, Friends, Anything From REAL LIFE—Like An Artist Even If You CAN'T DRAW A Straight Line! Anything you want to draw is automatically seen on any sheet of paper thru the "Magic Art Reproducer." Then easily follow the lines of the "picture image" with a pencil for an original "professional looking" drawing. Also reduces or enlarges. SEND NO MONEY! Free 10 Day Trial! Pay Postman on delivery \$1.98 plus postage. Or send only \$1.98 with order and we pay postage. Money Back Guarantee.

NORTON PRODUCTS, Dept. 4403F, 296 Broadway, N. Y. C.



WINFIELD ARMS CORPORATION
409 East Pico Blvd., Room PS-3, Los Angeles 15, Calif.

How to maintain floors



Clean, sparkling wood floors are simple to have and hold. Free book tells how. Easy step-by-step pictures explain. Send coupon now for Free copy. Limited printing so write today

FREE

MAIL THIS HANDY COUPON RIGHT AWAY

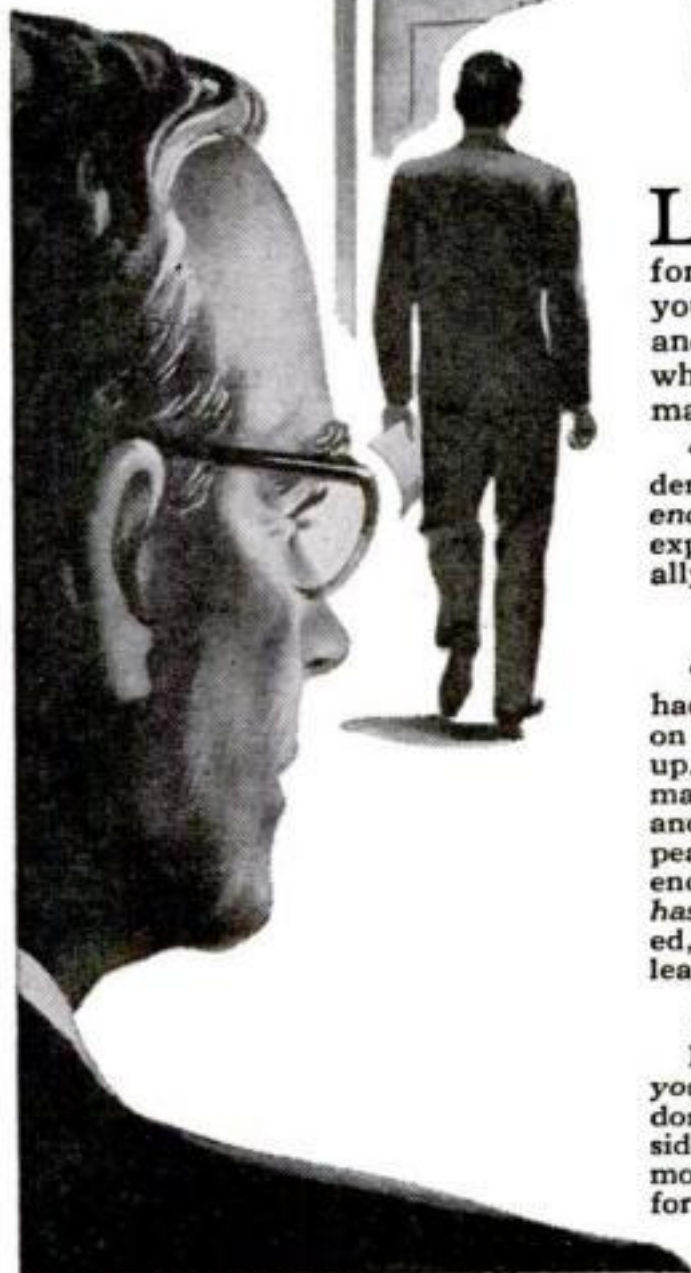
Red Devil Tools, Irvington 11, N. J.
Please send Booklet HT-333

NAME.....

ADDRESS.....

CITY.....STATE.....

Look at Yourself Through Your Boss's Eyes



LET'S say you've worked faithfully at the same job and same pay for some time. You wonder what your boss *really* thinks about you, and about your future. Well, here's what one boss (one who employs many men) says:

"When I look at a man I often wonder whether he's one of these *experience-only* fellows—one who thinks his experience in his present job automatically qualifies him for the job ahead.

This Is What Men Tell Him

"Sometimes a man will tell me he's had five years' experience with us; based on that alone, he wants me to move him up. He doesn't realize that he may have mastered his present job in one year—and that his next four years simply repeated that *very same* round of experience. What I want to know is *what he has done for himself*—what he has added, on his own hook, to the things learned in his present job!"

How Do YOU Stack Up?

Looking at it that way, how do you really stack up? Have you done a lick of work, on the outside, to make yourself *worth* more money, to help *prepare* yourself for the job ahead?

Experience alone isn't the answer. You've seen that all around you. But if you were here working with us at I.C.S. you'd see personal reports by the hundreds telling what present experience **PLUS** new training can mean to a man. In fact, a recent Survey showed that—in one single 120-day period—1973 I.C.S. students were promoted to better jobs!

Only A Few Cents A Day

You don't have to quit your job to get the training you need in order to get ahead faster—in your present field or in a new one. And the cost to you is **ONLY A FEW CENTS A DAY**—and a fraction of the home spare-time which may now be getting you nowhere!

You have your choice of 391 courses; and you get the personal help of one or more of our 203 expert instructors.

FREE — 2 INTERESTING BOOKS

Just mail the coupon for a Free Book about the subject you're interested in. Also, free, "How to Succeed" — our 36-page goldmine of advice on Why People Fail, How to Pick Your Goal, How to Develop Hidden Talents, etc. Take advantage of today's new job opportunities. Mailcoupon, without obligation, NOW.



INTERNATIONAL CORRESPONDENCE SCHOOLS



BOX 7642-N, SCRANTON 9, PENNA.

Without cost or obligation, send me "HOW to SUCCEED" and the booklet about the course BEFORE which I have marked X:

- | | | | | |
|---|---|---|---|--|
| ART
<input type="checkbox"/> Commercial Art
<input type="checkbox"/> Magazine and Book Illustrating
<input type="checkbox"/> Cartooning
<input type="checkbox"/> Show Card and Sign Lettering
<input type="checkbox"/> Fashion Illustrating
AUTOMOTIVE
<input type="checkbox"/> Automobile, Mechanic
<input type="checkbox"/> Auto-Elec. Technician
<input type="checkbox"/> Auto Body Rebuilding and Refinishing
<input type="checkbox"/> Diesel—Gas Engines
AVIATION
<input type="checkbox"/> Aeronautical Engineering Jr.
<input type="checkbox"/> Aircraft Engine Mechanic
<input type="checkbox"/> Airplane Drafting
BUILDING
<input type="checkbox"/> Architecture
<input type="checkbox"/> Arch. Drafting
<input type="checkbox"/> Building Contractor
<input type="checkbox"/> Estimating
<input type="checkbox"/> Carpenter and Mill Work
<input type="checkbox"/> Carpenter Foreman
<input type="checkbox"/> Reading Blueprints
<input type="checkbox"/> House Planning
<input type="checkbox"/> Plumbing | <input type="checkbox"/> Heating
<input type="checkbox"/> Steam Fitting
<input type="checkbox"/> Air Conditioning
<input type="checkbox"/> Electrician
BUSINESS
<input type="checkbox"/> Business Administration
<input type="checkbox"/> Certified Public Accountant
<input type="checkbox"/> Accounting
<input type="checkbox"/> Bookkeeping
<input type="checkbox"/> Stenography and Typing
<input type="checkbox"/> Secretarial
<input type="checkbox"/> Federal Tax
<input type="checkbox"/> Business Correspondence
<input type="checkbox"/> Personnel and Labor Relations
<input type="checkbox"/> Advertising
<input type="checkbox"/> Retail Business Management
<input type="checkbox"/> Managing Small Business
<input type="checkbox"/> Sales Management
<input type="checkbox"/> Salesmanship
<input type="checkbox"/> Traffic Management
CHEMISTRY
<input type="checkbox"/> Chemical Engineering
<input type="checkbox"/> Chemistry
<input type="checkbox"/> Analytical Chemistry
<input type="checkbox"/> Petroleum—Nat'l Gas
<input type="checkbox"/> Pulp and Paper Making
<input type="checkbox"/> Plastics | CIVIL, STRUCTURAL ENGINEERING
<input type="checkbox"/> Civil Engineering
<input type="checkbox"/> Structural Engineering
<input type="checkbox"/> Surveying and Mapping
<input type="checkbox"/> Structural Drafting
<input type="checkbox"/> Highway Engineering
<input type="checkbox"/> Reading Blueprints
<input type="checkbox"/> Concrete Construction
<input type="checkbox"/> Sanitary Engineering
DRAFTING
<input type="checkbox"/> Aircraft Drafting
<input type="checkbox"/> Architectural Drafting
<input type="checkbox"/> Electrical Drafting
<input type="checkbox"/> Mechanical Drafting
<input type="checkbox"/> Structural Drafting
<input type="checkbox"/> Sheet Metal Drafting
<input type="checkbox"/> Mine Surveying and Drafting
ELECTRICAL
<input type="checkbox"/> Electrical Engineering
<input type="checkbox"/> Electrician
<input type="checkbox"/> Electrical Maintenance
<input type="checkbox"/> Electrical Drafting
<input type="checkbox"/> Electric Power and Light
<input type="checkbox"/> Lineman
HIGH SCHOOL
<input type="checkbox"/> High School Subjects | <input type="checkbox"/> College Preparatory
<input type="checkbox"/> Mathematics
<input type="checkbox"/> Commercial
<input type="checkbox"/> Good English
MECHANICAL AND SHOP
<input type="checkbox"/> Mechanical Engineering
<input type="checkbox"/> Industrial Engineering
<input type="checkbox"/> Industrial Supervision
<input type="checkbox"/> Foremanship
<input type="checkbox"/> Mechanical Drafting
<input type="checkbox"/> Machine Design-Drafting
<input type="checkbox"/> Machine Shop Practice
<input type="checkbox"/> Tool Design
<input type="checkbox"/> Industrial Instrumentation
<input type="checkbox"/> Machine Shop Inspection
<input type="checkbox"/> Reading Blueprints
<input type="checkbox"/> Toolmaking
<input type="checkbox"/> Gas—Electric Welding
<input type="checkbox"/> Heat Treatment—Metallurgy
<input type="checkbox"/> Sheet Metal Work
<input type="checkbox"/> Sheet Metal Pattern Drafting
<input type="checkbox"/> Refrigeration
POWER
<input type="checkbox"/> Combustion Engineering
<input type="checkbox"/> Diesel—Electric
<input type="checkbox"/> Electric Light and Power | <input type="checkbox"/> Stationary Steam Engineering
<input type="checkbox"/> Stationary Fireman
RADIO, TELEVISION, COMMUNICATIONS
<input type="checkbox"/> General Radio
<input type="checkbox"/> Radio Operation
<input type="checkbox"/> Radio Servicing—FM
<input type="checkbox"/> Television
<input type="checkbox"/> Electronics
<input type="checkbox"/> Telephone Work
RAILROAD
<input type="checkbox"/> Locomotive Engineer
<input type="checkbox"/> Diesel Locomotive
<input type="checkbox"/> Air Brakes
<input type="checkbox"/> Car Inspector
<input type="checkbox"/> Railroad Administration
TEXTILE
<input type="checkbox"/> Textile Engineering
<input type="checkbox"/> Cotton Manufacture
<input type="checkbox"/> Rayon Manufacture
<input type="checkbox"/> Woolen Manufacture
<input type="checkbox"/> Loom Fixing
<input type="checkbox"/> Finishing and Dyeing
<input type="checkbox"/> Textile Designing
HOME ARTS
<input type="checkbox"/> Dressmaking and Designing
<input type="checkbox"/> Cookery
<input type="checkbox"/> Tea Room Management |
|---|---|---|---|--|

Name _____ Age _____ Home Address _____

City _____ State _____ Working Hours _____ A.M. to _____ P.M.

Occupation _____

Special tuition rates to members of the Armed Forces. Canadian residents send coupon to International Correspondence Schools Canadian, Ltd., Montreal, Canada.

BE ESSENTIAL TO INDUSTRY



DRAFTING

TODAY'S IMPORTANT JOB



You Get This Professional Set of Instruments at no Extra Cost

It's Easy—At Home In Your Spare Time

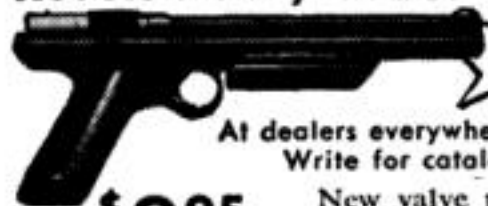
There is a growing, desperate need for draftsmen—the key men in all industry. CEI can quickly give YOU the necessary technical skill. Bigger income, jobs, and opportunities are yours with a CEI diploma. Thousands have succeeded. So can you! CEI guarantees to train you until you qualify. Write today!



Cleveland Engineering Institute
Extension Division PS3C
6300 Euclid Avenue, Cleveland 3, Ohio
Please rush my FREE book today!
☐ Aeronautical ☐ Mechanical
NAME
ADDRESS
CITY..... STATE.....
No Obligation—No Salesmen

FREE MONEY MAKING FACTS

Revolutionary NEW high powered



Crosman PISTOL

At dealers everywhere.
Write for catalog.

\$9.95

New valve principle, fingertip cocking, precision rifled barrel, blued steel finish, adjustable sight, .22 caliber.

CROSMAN ARMS CO., Rochester 20, N. Y., Dept. 46

INVENTORS

Your first step—if you consider your invention to be something of importance—is to have a search made of pertinent, prior U. S. patents. If our search report indicates probable patentability of your invention, you may apply for a patent which gives you the right to exclude others from making, using or selling your invention as claimed for a term of 17 years.

This firm is registered to practice before the U. S. Patent Office and is available to assist in the preparation of the necessary drawings, specification and claims.

Ask for a copy of our instructive booklet "Patent Protection for Inventors" and our convenient "Evidence of Invention" form. No obligation.

VICTOR J. EVANS & Co. *Merlin M. Evans*
REGISTERED PATENT ATTORNEY

840-C MERLIN BUILDING, WASHINGTON 6, D. C.

INVENTORS

IF YOU WISH TO PROTECT YOUR INVENTION, You should take steps to protect it by a U. S. Patent. Write me for "INVENTION RECORD" FORM

CARL MILLER
REGISTERED PATENT ATTORNEY

WOOLWORTH BLDG., 35th FLOOR, 33C
NEW YORK CITY

INVENTORS

Whether an invention is patentable can be substantially determined by a search of the U. S. Patent records. Without obligation, write for information explaining the steps you should take to secure a patent.

JOHN N. RANDOLPH

Registered Patent Attorney

205 Columbian Building Washington 1, D. C.

INVENTORS

Send for
PATENT INFORMATION
Book and
INVENTOR'S RECORD
without obligation

GUSTAVE MILLER
33PS Warner Building
Washington 4, D. C.

REGISTERED PATENT ATTORNEY

PATENT ATTORNEY & ADVISOR
U. S. NAVY DEPT. 1930-1947
ASSOCIATE EXAMINER
U. S. PAT. OFF. 1922-1929
PATENT LAWYER



PATENTS
C. A. SNOW & CO.
REGISTERED PATENT ATTORNEYS

WRITE FOR INFORMATION TO
426 SNOW BUILDING, WASHINGTON 1, D. C.



INVENTORS

I shall be pleased to furnish you, upon request, with information relative to patent procedure—without any obligation on your part.

PATRICK D. BEAVERS

Registered Patent Attorney

937 Columbian Building, Washington 1, D. C.

RUPTURE!

An amazing Air-Cushion Invention allows body freedom at work or play. Light, neat, cool, sanitary. Durable, cheap. Day and night protection helps Nature support weakened muscles gently but surely. No risk. **Sent on Trial!** Write NOW for free Booklet and **Proof of Results.** All correspondence confidential.

Brooks Company, 374-A State St., Marshall, Mich.





7 DAY FREE TRIAL
Return and Pay Nothing if Not Completely Satisfied



NOW! You can easily **Fix ANY Car** in less time-- and do a better job too!

MOTOR'S Manual paid for itself on the first 2 jobs, and saved me valuable time by eliminating guesswork." — **W. SCHROP, Ohio**

"Instructions so clear have no trouble learning anything about any car. Now working as mechanic in big plant." — **SAM ORDONEZ, Cal.**

"I have become foreman of my garage—thanks to help of your Manual." — **ELMER HENSLER, Wisc.**

Here's the Quick, Easy Way to Repair ANY CAR BUILT SINCE 1935. Step-by-Step Instructions by Factory Experts, Over 2400 "How-to-do-it" Pictures, Over 200 "Quick Check" Tables Make it "Easy as Pie" For Even a Beginner To Do A First-Rate Job.

NO auto repair job is tough when you've got MOTOR's big brand-new **AUTO REPAIR MANUAL**. Shows how to save work on "ornery" jobs. Helps you make **MORE MONEY** by doing more jobs in less time. Try this amazing book **FREE** for 7 days.

Want to fix anything from carburetor to rear end, Jeep to Cadillac, shaky '35 to a fine '52? Here's the quick, easy, right way—the way factory experts advise. Just look up make, model, and job in quick index—and go to it. Clear, **ILLUSTRATED** instructions lead you step by step through whole job.

NO OTHER MANUAL LIKE IT!

The engineer-editors of **MOTOR Magazine** collected and "broke down" over 170 official

factory shop manuals for you—spotted all the vital repair information you need—dove-tailed it all together into **ONE** handy, easy-to-understand book.

EVERYTHING YOU'LL NEED TO KNOW

MOTOR's Manual takes nothing for granted. Starts at the very beginning; tells how to identify all 851 car models. More than 2400 easy-to-follow Photos, Drawings, Diagrams guide you step-by-step right thru each operation. Over 800 big pages crammed with **Factory Specifications and Adjustment Tables, Tune-up Charts, Tables of Measurement and Clearances, Overhauling and Replacement facts, Automatic Transmissions (including New Dual-Range Hydra-Matic), Engines (including New De Soto, Lincoln, Ford Engines), Ignition, Generators, Carburetors, Brakes, Overdrives, and much MORE!**



COVERS 851 MODELS — ALL THESE MAKES

- | | | |
|-----------|-----------|--------------|
| Buick | Ford | Nash |
| Cadillac | Frazer | Nash Rambler |
| Chevrolet | Henry J | Oldsmobile |
| Chrysler | Hudson | Packard |
| Cord | Kaiser | Plymouth |
| Crosley | Lafayette | Pontiac |
| De Soto | La Salle | Studebaker |
| Dodge | Lincoln | Terraplane |
| | Mercury | Willis |

Same FREE Offer on NEW MOTOR's TRUCK & TRACTOR REPAIR MANUAL

New Edition covers **EVERY** job on **EVERY** popular make gasoline truck and farm tractor made from 1936 thru 1952! Over 2267 pictures, 930 pages, 300,000 facts. All types of Gasoline Engines, Fuel Systems, Governors, Lubrication, Ignition, Starters, Generators, Clutches, Axles, Brakes and more! For **FREE 7-DAY TRIAL**, check box in coupon.



Try Book FREE 7 Days

SEND NO MONEY! Just mail coupon! When the postman brings book, pay him nothing. First, make it show you what it's got! Unless you agree this is the greatest time-saver and work-saver you've ever seen—return book in 7 days and pay nothing, owe nothing. Mail free trial coupon today! Address **MOTOR Book Dept., Desk 23, 250 West 55th St., New York 19, N. Y.**



Published by **MOTOR**, The Leading Automotive Business Magazine.

MAIL COUPON NOW FOR 7-DAY FREE TRIAL

MOTOR BOOK DEPARTMENT
Desk 23, 250 West 55th Street, New York 19, N. Y.

Rush to me at once: (Check box opposite book you want)

☐ **MOTOR's New AUTO REPAIR MANUAL.** If O. K. I will remit \$1 in 7 days, then \$2 monthly for 2 months, and a final payment of 95c. (plus 35c delivery charge), a month later. Otherwise I will return book postpaid in 7 days. (Foreign price, remit \$8 cash with order.)

☐ **MOTOR's New TRUCK AND TRACTOR REPAIR MANUAL.** (Described at left.) If O.K. I will remit \$2 in 7 days, and \$2 monthly for 3 months, plus 35c delivery charge with final payment. Otherwise I will return book promptly. (Foreign price, remit \$10 cash with order.)

Print Name.....Age.....

Address.....

City & Zone No.....State.....

☐ **SAVE 35c delivery charge** by enclosing **WITH COUPON** check or money order for full payment of \$5.95 for Auto Manual (or \$8.00 for Truck Manual). Same return-refund privilege applies.

World's Most Complete!
1953 ALLIED
 TV & RADIO CATALOG

FREE!

Everything in TV & Radio
 At Lowest Prices



236 PAGES
VALUE-
PACKED

Everything for
 Experimenters,
 Builders,
 Amateurs,
 Servicemen,
 Engineers, Soundmen

Send for ALLIED's big 236-page value-packed guide to everything in TV and Radio! Custom TV chassis, TV accessories, FM and AM radios, Amateur supplies, High-Fidelity Sound, P. A. Systems, recorders, test instruments, builders' kits—plus the world's largest stocks of electronic parts, tubes, tools and books. Get more for your money—send today for your **FREE 1953 ALLIED Electronics Catalog!**



SEND FOR
 FREE
 CATALOG

ALLIED RADIO

ALLIED RADIO CORP., Dept. 7-C-3
 833 W. Jackson Blvd., Chicago 7, Illinois

☐ Rush FREE 1953 ALLIED 236-Page Catalog.

Name _____

Address _____

City _____ Zone _____ State _____

**STOP THAT
 OIL BURNER!**

Copr. 1952 R. D., Inc.



GET THAT "NEW CAR" PERFORMANCE WITH

Ring-Re-Nu

TRADE-MARK

MOTOR RECONDITIONER KIT

No need for costly overhauling. Simply pour P.V.R. Compound in carburetor to clean engine; remove gum, tar and varnish. Then squeeze RING-RE-NU in cylinders . . . forms a pliable, lubricating seal around worn rings. Restores power and compression, eliminates oil burning and piston slap. Good for 10,000 plus miles . . . applied in a few minutes. Order Genuine RING-RE-NU . . . not a foreign import. Made in America for American engineered engines. Guaranteed not to harm your engine.



1 tube kit — good for all makes of cars (except those listed below) only **\$4.95**

POSTPAID

2 tube kit — for larger engines — Buick Roadmaster, Cadillac, Chrysler 8, La Salle, Lincoln, Packard 8, Olds 88 and 98 — \$8.95 postpaid.

(\$1.00 deposit required on all C.O.D. orders)

10 DAY MONEY BACK GUARANTEE

➔ **WRITE FOR FREE FOLDER**
RICHE DISTRIBUTING, INC.
 11916 MADISON AVE., DEPT. B3, CLEVELAND 7, OHIO



HYPNOTIZE

Modern speed hypnotism taught. Methods revealed. You are shown exactly what to say and do. Photo illustrated. Many interesting experiments. Self-hypnosis is fully explained. Amazing results. Detailed hypnotic tests given. Learn this exciting fascinating art. Hold your friends absolutely spellbound. Entertain.

A professional hypnotist tells you his secrets.

Free catalog of new hypnotism books sent on request.

Send for the startling book **"HYPNOTISM REVEALED"** ➔ **\$1**

78 RPM Phonograph Record Inducing Self-Hypnosis & Group-Hypnotism ➔ **\$5**

Thought of using sleep for learning, self-development? Send for new intriguing book, "Mental Power Through Sleep Suggestion." ➔ **\$1**

A helpful book, "HOW TO SLEEP WITHOUT PILLS" by Dr. Tracy ➔ **\$1**
 MELVIN POWERS, Master Hypnotist, 1324 Wilshire, Dept. 99, Hollywood 17, Calif.



MONEY for MEN ALL DATA **FREE**

THE PLASTEX Industry needs manufacturers on small scale and for big production of Lamp and Clock Stands, Art Goods and Novelties in Plastex and Marble imitation. Experience unnecessary. 1/2c material makes regular 10c store sellers. Rubber moulds furnished for speed production. Small investment brings good returns. We are now placing big chain store orders with manufacturers. Ambitious men have chance for real prosperity. Our Free booklet will interest and benefit you.

PLASTEX INDUSTRIES, Dept. 2, 3400 Third Ave., New York 56, N. Y.



**TRY HOME STUDY
 WATCHMAKING**

Turn spare time hours to pleasure and profit. Master watch repairing the thrifty home study way. An exciting hobby or fascinating career. No experience needed. Send coupon today!

FREE Sample Lesson

CHICAGO SCHOOL OF WATCHMAKING

2330 MILWAUKEE AVE., DEPT. 433A, CHICAGO 47, ILL.

SEND FREE SAMPLE HOME STUDY LESSON

Name _____

Address _____

City _____ Zone _____ State _____



AUDELS T.V.-RADIO SERVICE LIBRARY

2 VOLS. \$6 COMPLETE \$1 A MONTH

**HERE IS LATE INFORMATION
IN A HANDY FORM FOR RADIO
& TELEVISION REPAIRMEN,
SERVICEMEN AND STUDENTS
IT PAYS TO KNOW!**

AUDELS T.V.-RADIO SERVICE LIBRARY presents the important subjects of Modern Radio, Television, Industrial Electronics, F.M. Public Address Systems, Auto, Marine & Aircraft Radio, Phonograph Pick-Ups, etc. Covers Basic Principles—Construction—Installation—Operation—Repairs—Trouble Shooting. Shows How to get Sharp, Clear T.V. Pictures. Install Aerials—How to Test. Explains Color Systems & Methods of Conversion. 1001 Facts—Over 1260 Pages—625 Illustrations of Parts & Diagrams—Valuable for Quick Ready Reference & Home Study. Tells How to Solve T.V. & Radio Troubles—Answers T.V. & Radio Questions.

**Get this information for Yourself,
7 DAY TEST—ASK TO SEE IT!**

MAIL ORDER

AUDEL, Publishers, 49 W. 23rd St., New York 10, N.Y.
Mail AUDEL'S T.V. RADIO SERVICE LIBRARY 2 Vols. \$6 on 7 days free trial. If O.K. I will remit \$1 in 7 days and \$1 monthly until \$6 is paid. Otherwise I will return them.

Name _____

Address _____

Occupation _____

Employed by _____

AUDELS Carpenters and Builders Guides 4 vols. \$6



Inside Trade Information On:

How to use the steel square—How to file and set saws—How to build furniture—How to use a mitre box—How to use the chalk line—How to use rules and scales—How to make joints—Carpenters arithmetic—Solving mensuration problems—Estimating strength of timbers—How to set girders and sills—How to frame houses and roofs—How to estimate costs—How to build houses, barns, garages, bungalows, etc.—How to read and draw plans—Drawing up specifications—How to excavate—How to use settings 12, 13 and 17 on the steel square—How to build hoists and scaffolds—skylights—How to build stairs—How to put on interior trim—How to hang doors—How to lath—lay floors—How to paint.



Inside Trade Information for Carpenters, Builders, Joiners, Building Mechanics and all Woodworkers. These Guides give you the short-cut instructions that you want—including new methods, ideas, solutions, plans, systems and money saving suggestions. An easy progressive course for the apprentice and student. A practical daily helper and Quick Reference for the master worker. Carpenters everywhere are using these Guides as a Helping Hand to Easier Work, Better Work and Better Pay. To get this assistance for yourself, simply fill in and mail the FREE COUPON below.

AUDEL, Publishers, 49 W. 23rd St., New York 10, N.Y.
Mail Audels Carpenters and Builders Guides, 4 vols., on 7 days free trial. If OK I will remit \$1 in 7 days and \$1 monthly until \$6 is paid. Otherwise I will return them. No obligation unless I am satisfied.

Name _____

Address _____

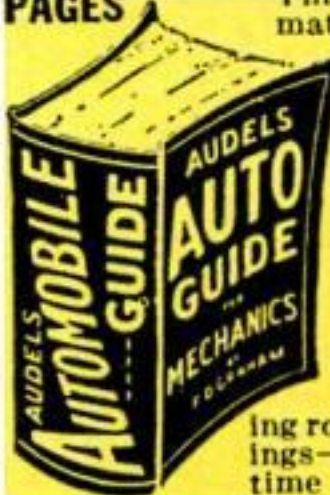
Occupation _____

Employed by _____

53

WHAT ALL AUTO MECHANICS WANT TO KNOW

**1800
PAGES**



This Big Practical Book gives full information with working diagrams covering the principles, construction, ignition, service and repair of modern cars, trucks and buses.

Diesel Engines, Hydramatic & Fluid Drives Fully Explained.

A complete Guide of 1800 pages, with over 1500 illustrations showing inside views of working parts, with instructions for service jobs.

IT PAYS TO KNOW

How to fit pistons—How to locate engine knocks. How to fit connecting rod bearings—How to service main bearings—How to recondition valves—How to time valves—How to adjust fan belts—How to adjust carburetors and chokes. How

to rebuild a clutch—How to service automatic transmissions—How to service brakes—How to adjust steering gear—How to cope with ignition troubles—How to service distributors—How to time ignition—How to "tune up" an engine.

**\$4 COMPLETE • PAY \$1 A MO.
TO GET THIS ASSISTANCE FOR
YOURSELF SIMPLY FILL IN AND
MAIL COUPON TODAY.**



Step up your own skill with the facts and figures of your trade. Audel's Mechanics Guides contain Practical Inside Trade Information in a Handy Form. Fully illustrated and Easy to Understand. Highly Endorsed. Check the book you want for 7 DAYS FREE EXAMINATION. Send No Money. Nothing to pay postman.

MAIL ORDER

AUDEL, Publishers, 49 W. 23 St., NEW YORK 10, N.Y.

Please send me postpaid for FREE EXAMINATION books marked (X) below. If I decide to keep them I agree to mail \$1 in 7 Days on each book or set ordered and further mail \$1 monthly on each book or set until I have paid price, otherwise I will return them.

- | | | |
|--------------------------|--|-----|
| <input type="checkbox"/> | AUTOMOBILE MECHANICS GUIDE, 1800 Pages | \$4 |
| <input type="checkbox"/> | TRUCK & TRACTOR GUIDE, 1299 Pages | 4 |
| <input type="checkbox"/> | DIESEL ENGINE MANUAL, 575 Pages | 2 |
| <input type="checkbox"/> | MACHINISTS HANDY BOOK, 1650 Pages | 4 |
| <input type="checkbox"/> | WELDERS GUIDE, 400 Pages | 1 |
| <input type="checkbox"/> | BLUE PRINT READING, 416 Pages | 2 |
| <input type="checkbox"/> | MATHEMATICS & CALCULATIONS, 700 Pages | 2 |
| <input type="checkbox"/> | SHEET METAL PATTERN LAYOUTS, 1100 Pages | 4 |
| <input type="checkbox"/> | SHEET METAL WORKERS HANDY BOOK, 388 Pgs. | 1 |
| <input type="checkbox"/> | MECHANICAL DRAWING GUIDE, 160 Pages | 1 |
| <input type="checkbox"/> | MECHANICAL DRAWING & DESIGN, 480 Pages | 2 |
| <input type="checkbox"/> | AIRCRAFT WORKER, 240 Pages | 1 |
| <input type="checkbox"/> | TELEVISION SERVICE MANUAL, 384 Pages | 2 |
| <input type="checkbox"/> | RADIOMANS GUIDE, 914 Pages | 4 |
| <input type="checkbox"/> | ELECTRONIC DEVICES, 216 Pages | 2 |
| <input type="checkbox"/> | ELECTRIC MOTOR GUIDE, 1000 Pages | 4 |
| <input type="checkbox"/> | ELECTRIC WIRING DIAGRAMS, 272 Pages | 1 |
| <input type="checkbox"/> | ELECTRICIANS EXAMINATIONS, 250 Pages | 1 |
| <input type="checkbox"/> | ELECTRIC POWER CALCULATIONS, 425 Pages | 2 |
| <input type="checkbox"/> | HANDY BOOK OF ELECTRICITY, 1440 Pages | 4 |
| <input type="checkbox"/> | ELECTRIC DICTIONARY, 9000 Terms | 2 |
| <input type="checkbox"/> | ELECTRIC LIBRARY, 7000 Pages (12 Book Set) | 18 |
| <input type="checkbox"/> | MARINE ENGINEERS HANDY BOOK, 1258 Pgs. | 4 |
| <input type="checkbox"/> | SHIPFITTERS HANDY BOOK, 250 Pages | 1 |
| <input type="checkbox"/> | REFRIGERATION & Air Conditioning, 1280 Pgs. | 4 |
| <input type="checkbox"/> | MILLWRIGHTS & MECHANICS GUIDE, 1200 Pgs. | 4 |
| <input type="checkbox"/> | POWER PLANT ENGINEERS GUIDE, 1500 Pages | 4 |
| <input type="checkbox"/> | ENGINEERS & FIREMANS EXAMS, 525 Pages | 1 |
| <input type="checkbox"/> | PUMPS, Hydraulics & Air Compressors, 1658 Pgs. | 4 |
| <input type="checkbox"/> | ENGINEERS LIBRARY (3 Book Set) | 9 |
| <input type="checkbox"/> | MECHANICAL DICTIONARY, 950 Pages | 4 |
| <input type="checkbox"/> | GARDENERS & GROWERS GUIDES (4 Book Set) | 6 |
| <input type="checkbox"/> | CARPENTERS & BUILDERS GUIDES (4 Book Set) | 6 |
| <input type="checkbox"/> | PLUMBERS & Steamfitters Guides (4 Book Set) | 6 |
| <input type="checkbox"/> | MASONS AND BUILDERS GUIDES (4 Book Set) | 6 |
| <input type="checkbox"/> | PAINTERS & DECORATORS MANUAL, 450 Pgs. | 2 |
| <input type="checkbox"/> | HOUSE HEATING GUIDE, 1000 Pages | 4 |
| <input type="checkbox"/> | OIL BURNER GUIDE, 384 Pages | 1 |

**Check
NOW!**

*You Can
Look Over
Any Guide
In Your
Own Home
—
Start the
Easy Pay-
ments If
Satisfied*

**MAIL
THIS
TODAY**

Name _____

Address _____

Occupation _____

Employed by _____

53

MARCH 1953 29



Want a New Kitchen in a Hurry?

USE THESE MODERN CURTIS CABINETS!

Spin
shelves

Slide-out
trays

Pan unit

Swing
shelves

Smart, modern design—marvelous new convenience features—roomy storage space—they're all yours in a new Curtis woman-planned kitchen. Each wood cabinet comes separately cartoned—complete with hardware and hinges applied. What's more, you can have your Curtis kitchen in natural birch to bring out the full beauty of the wood—or if you prefer, cabinets come finish coated in white, ready for you to decorate. Curtis cabinets fit any kitchen—are scientifically designed to make kitchen work a real pleasure. Send now for our full color kitchen idea book.

Curtis Companies
Service Bureau
PS-3 Curtis Building
Clinton, Iowa

Please send me your new
kitchen idea book.
I enclose 10 cents.

Name.....

Address.....

City.....State.....

1866
CURTIS
WOODWORK

MONTH AFTER MONTH, YEAR AFTER YEAR, YOU SEE OUR AD.
CHECK AND DOUBLECHECK BEFORE YOU BUY ANYWHERE!
1 Are these tires "Family-Safe"? Our families use them.
2 Are They Recaps? Ours are not (except passenger Snow-Tires)
3 Will I get Goodyear, U.S. & famous Brands? From Us, You Must!
4 Is the guarantee unconditional? See our fine offers below.
5 Can good tires be bought cheaper? It's dangerous to pay less.
6 Is a tube included free? Yes, we do. See OUR Free Tube Offer.

GOODYEAR Firestone

GOODRICH, U.S. & OTHER USED TIRES. (NO NOT RECAPS)
DOUBLE WARRANTY & UNCONDITIONAL GUAR. ON PASS. TIRES

Our policy is to select your tires so carefully, as if our very
future depended on the service given by that particular tire.

FREE TUBE WITH EVERY GOOD GRADE, AND FINEST
GRADE PASSENGER AND TRUCK TIRE.

GOOD GRADE 20 MONTHS GUARANTEE BOND							
600-16	\$4.02	820-15	\$5.30	600-20	\$6.92	32x6(8)	\$8.50
650-16	4.40	700-15	4.22	650-20	7.52	32x6(10)	9.80
700-16	5.00	670-15	4.40	700-20	8.40	900-20	13.10
650-15	4.00	710-15	4.60	750-20	8.40	1000-20	13.62
760-15	4.90	550-19	6.54	825-20	13.92	1100-20	13.94

FINEST GRADE, 30 MONTHS GOLDEN RULE GUARANTEE BOND THIS GRADE MADE THE "BLATT" NAME WORLD FAMOUS							
600-16	\$5.12	700-15	\$5.32	30 MONTH GUAR. TRUCK TIRES			
600-16(6)	6.42	475-19	5.08	700-15(6)	\$9.92	700-20	\$12.52
650-16	5.92	640-15	5.02	700-17	10.62	750-20	12.92
650-16(6)	7.92	670-15	5.22	750-16	9.62	750-20(10)	17.52
700-16	6.52	710-15	5.72	750-15	13.22	825-20	18.22
700-16(6)	8.72	760-15	5.92	750-17	11.52	900-20	17.22
750-16	7.02	800-15	6.62	700-18	15.82	1000-20	18.52
550-17	4.52	820-15	6.72	600-20	8.72	1100-20	18.52
650-15	5.12	450-21	5.08	650-20	11.22	1200-20	21.52
				32x6(8)	11.60	1000-22	17.52
				BEST Whitewalls, \$2 ea. EXTRA	32x6(10)	13.42	1100-22 20.42

Buy the "Right" Std. Guar. 20 Mos. Rugged Guar. 32 Mos.
Truck Tires Military Mud-Sno tread
for "Your" Job 750-20 std \$10.08 750-20 rugg \$14.52
750-16 std \$13.52 900-16 std 10.58 900-16 rugg 15.08
750-16 rugg 17.64 600-16 std 6.48 600-16 rugg 9.95

BLATT BLATT BLDG., GIRARD & LANCASTER AVES.
DEPT. PS, PHILADELPHIA 31, PA.
SEND CHECK OR MONEY ORDER & THIS AD.
Shipments RUSHED Down South, Far-West and Up North

AVIATION!

Pays you more with a schooling
at Parks College. B.S. degree in 3 yrs.
from Saint Louis University—Aero. Eng.,
Maint. Eng., Aero Administration.
Non-credit courses for Private, Commer-
cial, Instrument, Flight Instructor and
Multi-Engine Ratings.
All Parks schooling approved for G.I.
training. Write today.

PARKS COLLEGE DEPT. S-33
EAST ST. LOUIS, ILL.

'How to Make Money with Simple Cartoons'



A book everyone who likes to
draw should have. It is free;
no obligation. Simply address

FREE
BOOK

CARTOONISTS' EXCHANGE
Dept. 193D Pleasant Hill, Ohio

SHORTHAND IN 6 WEEKS

LEARN AT HOME — LOW COST

Write 120 Words per minute. Age no obstacle.
Famous Speedwriting Shorthand. No symbols; no machines; uses
ABC's. Easiest to learn and use. Fast preparation for a better
position. Nationally used in leading offices and Civil Service; also
by executives, students, etc. 120 words per minute. 50% FASTER
than Civil Service requirements. Over 150,000 taught by mail.
The very low cost will surprise you. Also typing. 30th year.
Schools in over 360 cities.

WRITE FOR FREE BOOKLET TO:

Speedwriting
Dept. 2603-3, 55 W. 42 St., N. Y. 36

**GET
INTO**

RADIO-TELEVISION

**ELECTRONICS by
Shop-Method Home Training**

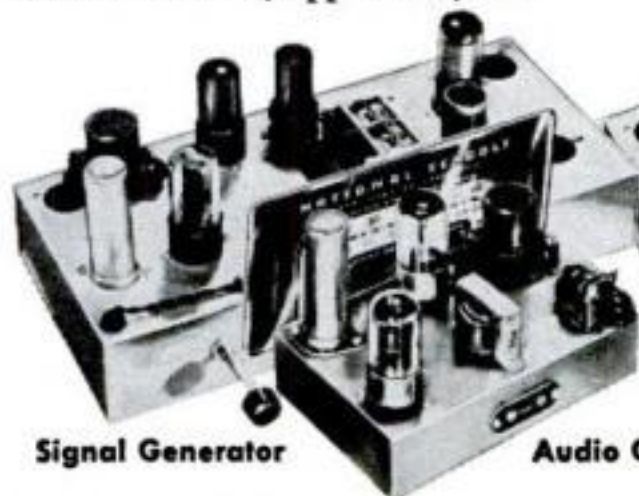
GOOD JOBS AWAIT THE TRAINED RADIO-TV TECHNICIAN

There is a place for you in the great Radio-Television-Electronics industry when you are trained as National Schools will train you at home!

Trained technicians are in growing demand at good pay—in manufacturing, broadcasting, television, communications, radar, research laboratories, home Radio-TV service, and other branches of the field. National Schools Master Shop-Method Home Training, with newly added lessons and equipment, trains you in your spare time, right in your own home, for these fascinating opportunities. OUR METHOD IS PROVED BY THE SUCCESS OF NATIONAL SCHOOLS TRAINED MEN, ALL OVER THE WORLD, SINCE 1905.

EARN WHILE YOU LEARN

Many National students pay for all or part of their training with spare time earnings. We'll show you how you can do the same! Early in your training, you receive "Spare-time Work" Lessons which will enable you to earn extra money servicing neighbors' and friends' Radio and Television receivers, appliances, etc.



Signal Generator



T.R.F. Receiver

Audio Oscillator

National Schools Training is All-Embracing

National Schools prepares you for your choice of many job opportunities. Thousands of home, portable, and auto radios are being sold daily—more than ever before. Television is sweeping the country, too. Co-axial cables are now bringing Television to more cities, towns, and farms every day! National Schools' complete training program qualifies you in all fields. Read this partial list of opportunities for trained technicians:

Business of Your Own • Broadcasting
Radio Manufacturing, Sales, Service • Telecasting
Television Manufacturing, Sales, Service
Laboratories: Installation, Maintenance of Electronic Equipment
Electrolysis, Call Systems
Garages: Auto Radio Sales, Service
Sound Systems and Telephone Companies, Engineering Firms
Theatre Sound Systems, Police Radio
And scores of other good jobs in many related fields.

TELEVISION TRAINING

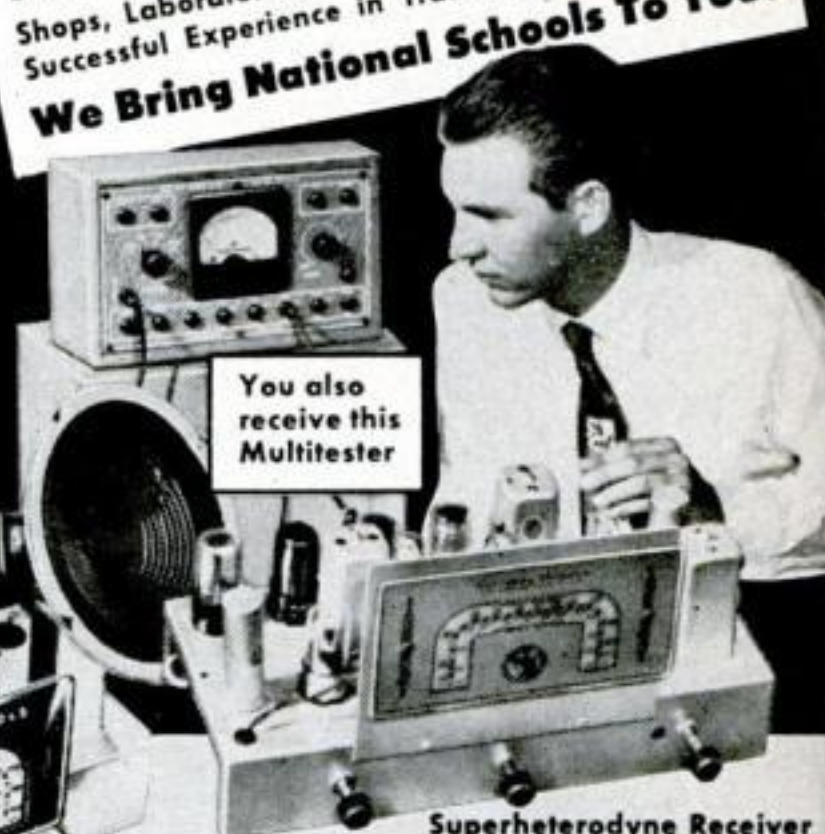
You get a complete series of up-to-the-minute lessons covering all phases of repairing, servicing and construction. The same lesson texts used by resident students in our modern and complete Television broadcast studios, laboratories and classrooms!



MASTER ALL PHASES!

Get Master Shop-Method Home Training from an Established Practical Resident School with its own Training with almost 50 Years of Successful Experience in Training Ambitious Men.

We Bring National Schools To You!



You also receive this Multitester

Superheterodyne Receiver

LEARN BY DOING

You receive and keep all the modern equipment shown above, including tubes and valuable, professional quality Multitester. No extra charges.

FREE! RADIO-TV BOOK AND SAMPLE LESSON!

Send today for National Schools' new, illustrated Book of Opportunity in Radio-Television-Electronics, and an actual Sample Lesson. No cost—no obligation. Use the coupon now—we'll answer by return airmail.

**APPROVED FOR
VETERANS
AND
NON-VETERANS**
Check coupon below

**Both
Resident and
Home Study
Courses Offered!**

NATIONAL SCHOOLS

LOS ANGELES 37, CALIFORNIA • ESTABLISHED 1905
IN CANADA: 193 E. HASTINGS STREET, VANCOUVER, B.C.



FIND OUT NOW—MAIL COUPON TODAY!

**NATIONAL SCHOOLS, Dept. RC-33
4000 South Figueroa Street
Los Angeles 37, California**

Mail in envelope or paste on postal card.

Send me FREE book "My Future in Radio-Television-Electronics" and the FREE sample lesson of your course. I understand no salesman will call on me.

NAME _____ AGE _____

ADDRESS _____

CITY _____ ZONE _____ STATE _____

☐ Check here if released from service less than 4 years ago.

Enjoy the Thrills of Short-Wave at a Down-to-Earth Price

FROM hallicrafters

Here is a radio that strides the world at the touch of a dial. Now you can hear historic world events direct, hear the BBC, Paris, Australia, exciting ship-to-shore broadcasts, amateurs from all over the world, the Voice of America, Russian propaganda, police calls, and in addition you get powerful long distance, broadcast-band reception.

Here is a radio that gives you superior short-wave and standard broadcast reception, yet costs no more than you'd expect to pay for an ordinary radio. Only Hallicrafters skill and know-how, the experience gained in years of producing more military type radio communications equipment than all other manufacturers combined, could produce this set. See it. Hear it—hear what you've been missing.



**HALLICRAFTERS
MODEL S-38C Only \$49⁵⁰**

hallicrafters

WORLD'S LEADING PRODUCER OF PRECISION
COMMUNICATIONS RADIOS

Write Hallicrafters, Box PM-23, Chicago 24
for further information

SAVE UP TO 50% & MORE!
from New York's leading
PAWNBROKER

GENUINE DIAMONDS

Buy diamonds and diamond jewelry half-priced from Kaskel's, America's foremost Pawnbroker. Every diamond is re-set in a luxurious new mounting... graded according to nationally accepted standard... and bonded to this effect. For over 70 years we've served over 1,000,000 satisfied customers from all 48 States.

**10 DAY UNCONDITIONAL
MONEY-BACK GUARANTEE.**

References:
Your bank,
or any
Rating
Agency.

SEND
FOR BIG

**FREE
ILLUSTRATED
CATALOG**

KASKEL'S

Department 8C, 9 Columbus Ave.
New York 23, N. Y.

FALSE TEETH

**That Loosen
Need Not Embarrass**

Many wearers of false teeth have suffered real embarrassment because their plate dropped, slipped or wobbled at just the wrong time. Do not live in fear of this happening to you. Just sprinkle a little **FASTEETH**, the alkaline (non-acid) powder, on your plates. Holds false teeth more firmly, so they feel more comfortable. Does not sour. Checks "plate odor" (denture breath). Get **FASTEETH** at any drug store.

CARBURETOR TOO RICH MAKES MOTORIST TOO POOR



Car owners who are wasting money, getting poor gas mileage due to over-rich mixtures, will be pleased to learn how to save gasoline by **VACU-MATING OVER-RICH MIXTURES**. Vacu-Matic fits all cars, trucks and tractors. Automatic and operates on the supercharge principle. Easily installed in a few minutes.

SALESMEN WANTED! Big Profits

For **FREE** particulars, how you can install one on your own car for introducing, just send your name and address on a postcard to **VACU-MATIC, 7617-2002 W. State St., WAUWATOSA, WIS.**

LEARN ELECTRICAL APPLIANCE REPAIRING & INSTALLATION

Start Your Own Business

Revolutionary **NEW TRAINING METHOD**, trains you **AT HOME** in just a few short weeks.

You receive big "On-the-job" home training kits, text equipment, audio instructions & practical service training lessons. You learn how to Service, Repair & Install all types of Electrical Appliances & Equipment. How to build & operate your own business, etc.

YOU EARN AS YOU LEARN:

You charge on basis of \$3.00 to \$5.00 per hour for spare time work!

Write today for your Free Book, and full details about this amazing opportunity for you in modern Electric Servicing.

**BIG
BOOK
FREE**

ADVANCE TRAINING, Dept. 203
5944 N. Newark Ave.

Chicago 31, Ill.



TURN RIGHT

Get on the Road to a Better Job-Brighter Future with ***RIGHT*** Training —then You Can Really GO!

AMERICAN SCHOOL, Dept. G346, Drexel at 58th, Chicago 37, Ill.

Without obligation, please send FREE and postpaid, full particulars about the subject checked below.

- | | | |
|--|---|---|
| <input type="checkbox"/> Accounting | <input type="checkbox"/> Drafting—Building Trades | <input type="checkbox"/> Plastics Engineering |
| <input type="checkbox"/> Air Conditioning | <input type="checkbox"/> Drafting—Machine Trades | <input type="checkbox"/> Plumbing—Practical |
| <input type="checkbox"/> Architecture & Building | <input type="checkbox"/> Electrical Engineering | <input type="checkbox"/> Private Secretary |
| <input type="checkbox"/> Automotive Technician | <input type="checkbox"/> Electricity—Practical | <input type="checkbox"/> Refrigeration |
| <input type="checkbox"/> Better Foremanship | <input type="checkbox"/> Electronics—Industrial | <input type="checkbox"/> Retail Merchandising |
| <input type="checkbox"/> Bookkeeping | <input type="checkbox"/> High School Courses | <input type="checkbox"/> Salesmanship—Outside |
| <input type="checkbox"/> Business Management | <input type="checkbox"/> Machine Shop Operations | <input type="checkbox"/> Sheet Metal Work |
| <input type="checkbox"/> Contracting | <input type="checkbox"/> Mathematics & Slide Rule | <input type="checkbox"/> Tool Making |
| <input type="checkbox"/> Diesel Technician | <input type="checkbox"/> Mechanical Engineering | |

NAME..... OCCUPATION.....
HOME ADDRESS..... AGE.....
CITY..... STATE.....

**START NOW by checking, filling in and mailing this coupon.
You'll get full information — No cost, No obligation!**

• Today, make the BIG decision of your life. Choose the career you want and take the first easy step toward your goal. Learn how you can get the training that can put you in the bigger pay class and give you security in the years ahead. Find out how, in spare time at home, you can qualify for work you prefer, and higher pay. Or if you are already in the work you like, find out how you can win quicker promotion and a larger income.

Backed by 55 Years of Training Know-How

Since 1897 American School has helped many thousands of ambitious people toward success by providing specialized training for

commercial and technical advancement. Its study program for *you* has been prepared by experts in the subject you select and the school will give you guidance every step of the way. In time you might otherwise waste and at a cost you can afford you can prepare at home and really GO on the *right* road.

Don't Delay YOUR Start

Give serious thought to the list of training courses listed above. Pick the opportunity that interests you, check it and add your name and address. (Check more than one if you are undecided which appeals most.) Then clip and mail the coupon. Full information will be supplied without cost or obligation.

PRACTICAL, EFFECTIVE HOME STUDY TRAINING SINCE 1897

AMERICAN SCHOOL, Dept. G346, Drexel at 58th, Chicago 37, Ill.

THE SOONER YOU START, THE SOONER YOUR GOAL CAN BE REACHED

Free Booklet Shows how to MAKE MONEY IN ART

Book explains: Art principles; artists' earnings; age no obstacle, youth no handicap; advantages of home study; figure drawing from life; examples of successful cartoonists, illustrators; layout, lettering, fashion art; design, color, composition; reproduction processes; outline of WSA home study course; how to sell your work.

Booklet is free so you can learn of WSA's place in the art-teaching picture.

We teach you from the beginning with famous Step-by-Step method; 39 years' experience; 2 art outfits included without extra cost. Enjoy a relaxing hobby—extra income—or a new and profitable career. Use coupon to get this illustrated, helpful book. No salesman will call. GI approved for eligible veterans.



**\$300
FOR
SINGLE
ILLUSTRATION**

"My work has been published in magazines; least I've received is \$40, most is \$300. Your great course gave me the 'know-how'." Floyd M. Green, Seattle, Washington.



**NOW
COMMERCIAL
ART
PARTNER**

"Was artist for engraving firm; now I'm in a commercial art partnership; I teach art in my spare time. Your course worth more to me every year." Thomas D. Dudley, Roanoke, Va.

DRAW FOR FUN & MONEY . . . DETAILS FREE

Washington School of Art,
Studio 133K, Washington, D. C.

Rush "Art for Pleasure & Profit" to

Name.....Age.....

Street.....

City.....Zone.....State.....

☐ Tell me about Trial Plan

BE A WELL-PAID TELEVISION SERVICE TECHNICIAN!

**NOW — For the First Time an
Exclusive TV Service Training
Program — 8 months or less.**

Get the inside facts on how you can step into the top professional \$5,000 to \$10,000 per year bracket of TV servicing. Free book tells you how. Master TV servicing QUICKLY by working on real live equipment right in our BIG SHOPS and LABORATORIES in America's Leading TV Servicing School. Shop trained men get the better jobs. WTI graduates win faster promotion . . . can demand better pay . . . develop highly profitable businesses of their own — with the latest and most complete PRACTICAL PERSONALIZED TRAINING BEHIND THEM. Non-essential math and engineering theory omitted. YOU CAN EARN WHILE YOU LEARN. LOW TUITION PLAN. Approved for Veterans. WTI Graduates in Big Demand. Send for your copy of this fact-packed book NOW!

SEND FOR
**FREE
COPY
TODAY!**

WESTERN TELEVISION INSTITUTE Dept. M-33
341 W. 18th St., Los Angeles 15, Calif.

Without obligation, please send FREE fully illustrated booklet. (No salesman will call.)

NAME.....AGE.....

ADDRESS.....

CITY.....ZONE.....STATE.....

U. S. GOV'T SURPLUS

"BARGAIN BOOK"

MAIL TODAY Only 10¢

SAVE ON WINTER NEEDS!

It's loaded with bargains in genuine Gov't Surplus for farm-home-industry. Save up to 85% on clothing, hardware, sporting goods, etc. The "Book of the year". Send 10c for yours today.

500 BARGAINS
• FARMS • SPORTS
• HOME • SHOP

FISLER SALES CO.
723 WALNUT ST., DESK 5-3, KANSAS CITY, MO.

2-BEDROOM HOME \$890

BUILD YOUR OWN

Living room 12x14. Master bedroom 10x12. Nursery-den 10x11. Kitchen 7x10. Bath 5x8. Concrete block built. Blue prints, material lists, exact instructions for 3 designs.

Complete **\$1** ppd.

SUNNY-CAL HOMES, Box 309-E3, Hollywood 28, Calif.

ANTIQUE GUNS

\$5995

\$3000

\$2995

HUNDREDS OF BARGAINS!

BIG ILLUSTRATED CATALOG

PIONEER GUN SHOP

SEND 50¢

DEPT. 1 11010 VICTORY BLVD., NO. HOLLYWOOD, CALIF.

TALK—SING—PLAY OVER YOUR RADIO

with the real Radio Mike! Attaches in a jiffy—full instructions given! Swell for "parties"—"cut in" on or "kid" regular network programs or put on your own broadcasts! Amaze your friends—real fun. Beautiful Metallic Plastic 6 in. high!

12 RADIO BROADCAST LESSONS GIVEN with each mike

SEND NO MONEY Just pay postman \$3.99 COD plus postage or send \$3.99 and we pay postage! Radio Mike is available only from us by mail—guaranteed.

Midway Co., Dept. MPS-3, Kearney, Nebr.

MEN PAST 40

Men afflicted with Bladder Trouble, Getting Up Nights, Pains in Back, Hips, Legs, Nervousness, Dizziness, Physical Inability and General Impotency send for our amazing **FREE BOOK** that tells how you may correct these conditions and have new health and Zest in Life. Write today. No Obligation.

Excelsior Institute, Dept. B-5, Excelsior Springs, Mo.

The SPEEDY STITCHER

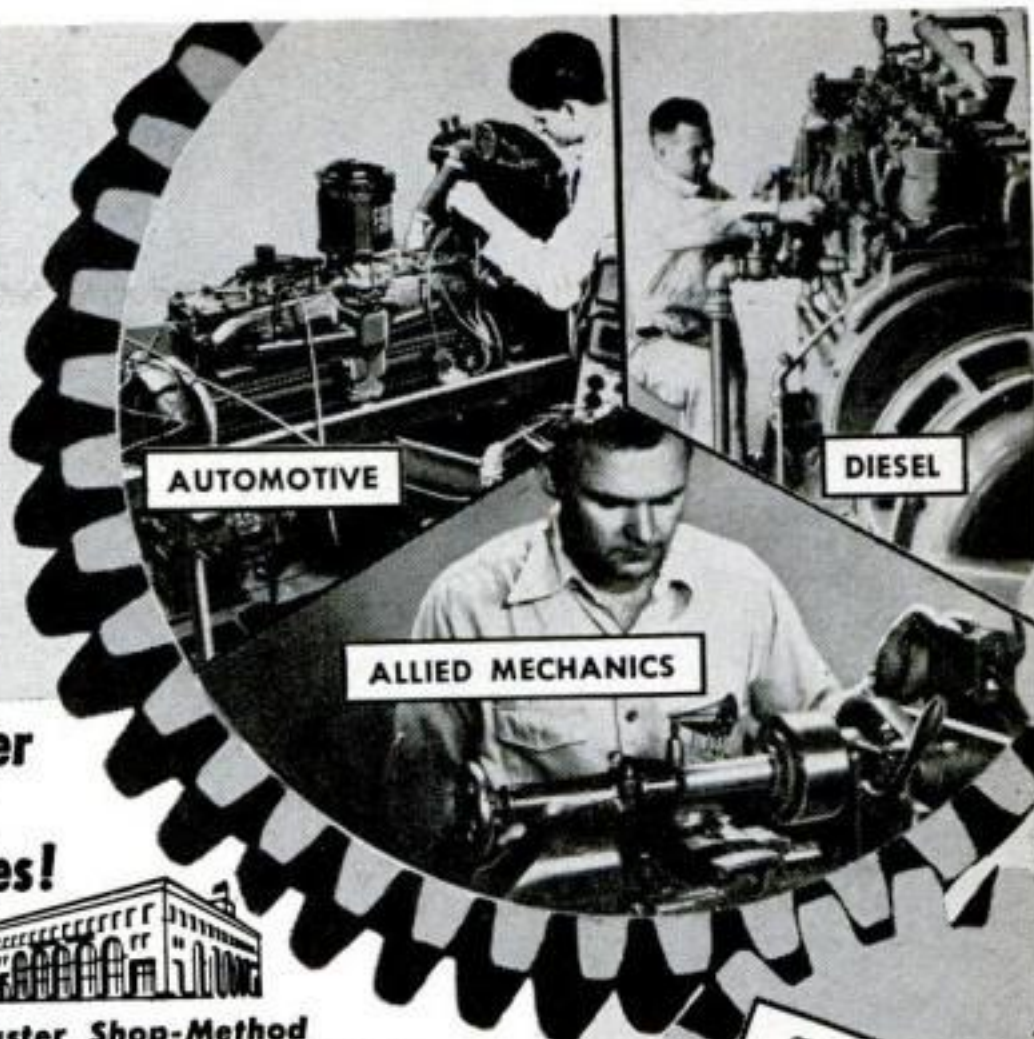
Sews quick and strong, making new or repairing all sorts of leather and canvas articles—boots, shoes, coats, gloves, belts, saddles, golf bags, Ski, Football, Baseball, Skating, Hunting, Fishing, Camping togs, grain bags, burlap, etc.

Each stitcher comes ready to use with a reel of waxed thread and 3 needles, assorted sizes. Needles are carried in handle. A handy tool for home or on hunting, fishing or camping trips. Price Postage prepaid \$1.00

LYMAN BRADFORD CO.
Box No. 350 KINGSTON, MASS.

GET INTO AUTOMOTIVE DIESEL AND ALLIED MECHANICS

by Shop Method Home Training



**JOBS LIKE THESE ARE OPEN
TO YOU AS A TRAINED ENGINE
MECHANIC... CHOOSE THE
FIELD YOU LIKE BEST!**

Get complete training

Diesel Fuel Injection
Automotive Motor Tune-up
Diesel Engine Maintenance
General Garage Mechanics
Agricultural Implements

Auto Engine Rebuilding • Auto Elec. Service
Public Utilities • Parts Dealers
Bus & Truck Lines • Industrial Maintenance
Contracting & Excavating
Business of Your Own

AND MANY other similar openings

EARN WHILE YOU LEARN

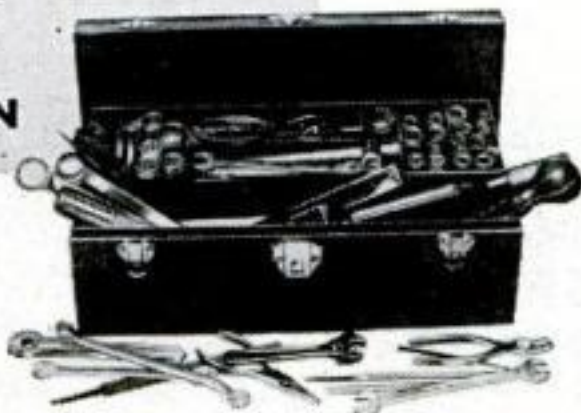
With our practical Master Shop-Method Home Training, you study at home in your spare time. You receive Spare Time Work Lessons, which show you how to earn while you learn...for extra money and experience. You Learn by DOING.

YOU RECEIVE AND KEEP ALL THIS MATERIAL:

Basic Lesson Texts	Engine Service Manuals
Diesel Installation	Engine Repair
Operation—Maintenance	Drive Systems
Diesel Chart Manual	Diesel Electric Power
Spare Time Lessons	Thermodynamics

**TOOLS AND EQUIPMENT
INVESTIGATE!
SECURE FULL
INFORMATION**

**WE GIVE
YOU TOOLS
OF YOUR
TRADE**



**Master
All
Phases!**



Get Master Shop-Method Home Training from an Established Resident School with its own Training Shops and Laboratories—and almost 50 years of Successful Experience in Training Men.

We Bring National Schools To You

National Schools trains you for all opportunities in the dynamic, fast-growing Automotive-Diesel and Allied Industries. You get complete training for this great Industry.

Thousands upon thousands of autos, trucks, tractors, ships, trains, farms and factories are dependent upon engine power! Trained engine mechanics are needed in the Armed Forces as well as in civilian production. This huge field needs trained men for servicing, repairing, installing, operating and manufacturing equipment. The pay is good, the future excellent! National Schools offers you a practical, all-embracing Automotive-Diesel Mechanics Course that qualifies you for your choice of many good jobs.

Your National Course covers Gasoline and Special Fuel Engines; Diesels, High Speed and Heavy Duty; Semi-Diesels; Allied Mechanics.

**BOTH RESIDENT
AND
HOME STUDY
COURSES
OFFERED**

**APPROVED FOR
VETERANS AND
NON-VETERANS
Check Coupon Below**



Free Book and Sample Lesson Show You How

Send today for National Schools' new, illustrated Book of Opportunity in Automotive, Diesel and Allied Mechanics, and an actual sample lesson. No cost — no obligation. Use the coupon now — we'll answer by return airmail.

NATIONAL SCHOOLS LOS ANGELES 37 CALIFORNIA

IN CANADA: 193 HASTINGS ST., VANCOUVER, B. C.

TECHNICAL TRAINING SINCE 1905

FIND OUT NOW...MAIL COUPON TODAY

NATIONAL SCHOOLS, Dept. DC-33
4000 South Figueroa Street
Los Angeles 37, California

(Mail in envelope
or paste on
postal card)

Mail me FREE the book "MY FUTURE IN AUTOMOTIVE-DIESEL AND ALLIED MECHANICS," together with the FREE Sample Lesson. I understand no salesman will call on me.

NAME _____ AGE _____

ADDRESS _____

CITY _____ ZONE _____ STATE _____

☐ Check here if released from service less than 4 years ago.

C.T.C. TRAINING IN DRAFTING

PREPARES FOR
PROMOTION
•
MORE MONEY
•
SUCCESS



"Here I am at work making good money as a draftsman. I'm glad I sent the coupon to Chicago Tech for that Free Trial Lesson and found out how easy it is to learn Drafting in spare time at home. Today, I feel secure in my job. What's more, I feel I'm slated for promotion and more pay."

LEARN IN SPARE TIME—AT HOME!

(or at the College in Chicago)

A few hours of pleasant home study every week—that's all. All the tools you need; drawing outfit included. This tested method—developed over 48 years of C.T.C. progress—prepares men quickly for good positions in industry



FREE INFORMATION — SEND COUPON

To prove to you how easy it is to learn Drafting at home by the Chicago Tech method, we will send you this FREE TRIAL LESSON. No charge for this lesson, now or later. Fill out and mail coupon, or send post card today.

CHICAGO TECHNICAL COLLEGE

C-221 Tech Bldg., 2000 So. Michigan Ave.,
Chicago 16, Illinois

Mail me FREE Lesson with information about big opportunities in DRAFTING.

Name.....Age.....

Address.....

City.....Zone.....State.....

FISHERMEN: Use Trip Sinkers!

Release your snagged fishing sinker by pulling it out backwards. Save your gear and control your temper. Convert your own fishing sinkers to TRIP SINKERS with these easily attached inserts. A real 'must' for all bottom fishing. Inserts for 10 sinkers—plus—full instructions only \$1 postpaid. Money back guarantee.

F. NELSON CO. 68 Westchester Sq.
New York 61, N.Y.

SAVE VALUABLE GEAR

THE MARC ARBOR

***The ANSWER to SHOP, GARAGE and HOME WORKSHOP PROBLEMS!**

Precision Built... unlimited application for smooth, fast, trouble free operation. Bearing spots are all ground to .0003. Arbor is fabricated from Seamless steel tubing. Mounting brackets are electrically welded to housing. S.K.F. Sealed Bearings... Never needs oiling!

ALSO EASILY ADAPTABLE ON

- Emery Wheels
- Dado Heads
- Swing Saws
- Moulding Head Cutters
- Table Heads
- Polishing & Buffing

and many other applications

2 SIZES AVAILABLE

1/2" and 1 1/2" SPINDLE
(Left and Right Hand Thread)

We pay postage if check or Money-Order accompany order. C.O.D.'s, plus postage.

WABEKE Manufacturing Co. Inc.
Dept. P, 252 School St., Hudsonville, Mich.

\$6.95
f.o.b.

SAVES YOUR TIME & MONEY

AS GRINDER

CIRCULAR SAW

AS ROUTER

Amazing Invention Defrosts Refrigerators AUTOMATICALLY



Pays Salesmen Up to \$210.00 a Week!

No wonder our salesmen are getting so rich and happy, with 29,000,000 eager prospects for the sensational Patented D-Frost-O-Matic that defrosts refrigerators Every Night without much fuss or bother. Saves electricity, wear on refrigerator, food and work.

You too, should make up to \$210.00 a week on our FREE TRIAL plan that clinches up to 4 orders out of 5, with big profit for you!

Start Spare Time. Yes, just a few hours in an evening should pay you up to \$18.00 PROFIT! Just plug in D-Frost-O-Matic—women won't let you take it out.

Profits Guaranteed.—No risk—if you don't find this the most fascinating, best paying business you ever heard of we'll refund every cent you paid for your initial order.

Rush name and address on postcard TODAY for generous FREE TRIAL plan.

D-FROST-O-MATIC

Dept. W-14, 173 W. Madison, Chicago



END THIS FOREVER

BECOME AN EXPERT IN TRAFFIC

Traffic men earn \$4,000 to \$10,000 and up. Thousands of firms need experts on rates, tariffs, regulations. We train you thoroughly in spare time at home for executive traffic jobs. Personal training under traffic authorities. Placement counsel and help. Write for free 48-page book "Traffic Management—the Fast Growing Profession."

LASALLE Extension University, 417 So. Dearborn St.
A Correspondence Institution Dept. 383-T Chicago 5, Ill.

SHOW CARD MAKING SIMPLIFIED

NOW EVERYONE CAN DRAW DISPLAY SIGNS

This big 9" x 11" how-to-do-it book shows step-by-step how to create simple and effective show cards.

Save by making them for yourself or earn extra money making show cards for others.

Shows all tested materials used, lettering charts, guides, layouts and ideas. Satisfaction guaranteed.

AMERICAN TECHNICAL SOCIETY
848 E. 58th St. L-320 Chicago 37, Ill.



LEARN MODERN WATCH AND CLOCK REPAIRING

Complete Course—Only \$5.95

At home, spare time. Good field now... security and contentment in future. Start part-time business and **EARN while you learn.** Horology is precision instrument work... a great and growing field, sensational opportunities. Easy self-instruction course. Full price, only \$5.95. **SEND NO MONEY.** Just pay postman, plus C.O.D. postage. Or send \$5.95 with order. We'll ship postpaid. Satisfaction guaranteed or refund. **NELSON-HALL CO., 210 S. Clinton St., Dept. 3CX-1, Chicago 6, Ill.**



BRAND NEW



BUSHNELL Binoculars

30 DAY FREE TRIAL

High Power BINOCULARS

Finest Precision Optics

Featherlight

Money Back Guarantee

Easy Pay Plan

Leather Case Incl'd

Free! Catalog & Book
"How to Select Binoculars"

Dealer Inquiries Invited

Bushnell Bldg., Dept P63
Pasadena 1, Calif.

33 MODELS
\$14.95
up

TRAIN FOR GOOD PAY IN A FIELD THAT ISN'T CROWDED!



**OPPORTUNITIES
EVERYWHERE!**

Don't drift into a rut! Don't train for something that everybody and his brother are studying! Consider the facts. . . . The average small home has at least 11 electric motors! Big homes have many more—in phonographs, recorders, oil burners, refrigerators, washers, fans, clocks, mixers, cleaners, air conditioners, etc., etc. Millions more in office, industrial, mining, and transit equipment. Be the well-paid expert who can keep them working!

**FREE
STUDY GUIDE**

A unique Study Guide booklet of 500 practical motor study questions—priced and sold separately at 25c—is yours **FREE** with your request to examine **ELECTRIC MOTOR REPAIR** book. Makes learning easier—speeds up the work! See coupon.

LEARN FAST . . . No Lessons to Wait for!

If sold as a course and sent to you in lesson form, **ELECTRIC MOTOR REPAIR** would be a bargain at 10 times the price. You get it all at once. You learn rapidly. Here are just a few of the subjects covered:



Split-Phase Motors
Capacitor Motors
Repulsion-type Motors
Polyphase Motors
Alternating-Current Motor Control
Direct-Current Armature Winding
Direct-Current Motors
Direct-Current Motor Control
Universal, Shaded-pole, and Fan Motors
D-C Generators, Synchronous Motors and Generators
Electronic Motor Control
. . . and essential motor data

**NOW! you can
LEARN ELECTRIC
MOTOR REPAIR**

... A good-paying, modern profession



... for only **\$6**

FOR THE COMPLETE TRAINING

Every day, more and more electric motors and motor control systems are being used BOTH in industry and in home appliances. The expert who can install and keep them working properly is a valuable man in this Electrical Age. The pay is surprisingly good. The field is tremendous—and growing rapidly. Trained men find opportunities everywhere for full or part time work. **ELECTRIC MOTOR REPAIR**, the big 560-page training course book teaches you the work step by step—quickly and easily—at home in spare time. There is no other book like it. Ideal for beginners or for actual bench use in busy shops. Thousands already in use in leading vocational schools, shops, and for home study.

SHOWS YOU HOW . . . Every Step of the Way!

Based on what you can learn quickly at home from **ELECTRIC MOTOR REPAIR** you can train for prompt, profitable installation, servicing, repairing and complete rewinding of practically any motor in use today. You learn fast! You learn right! Every subject is clearly explained by text AND ALSO by more than 900 illustrations and diagrams. You not only read what to do—you SEE how it is done. Quick reference guides tell you how to handle specific jobs. When a certain motor comes in for repairs, just look it up. **ELECTRIC MOTOR REPAIR** tells you what to do—and exactly how to do it.

ELECTRIC MOTOR REPAIR is designed for use right at the service bench. Unique Duo-Spiral Binding divides the book into two sections so that both text and related diagrams can be viewed together. An instructor standing by your side could hardly do better! **ELECTRIC MOTOR REPAIR** covers the entire field—from alternating- and direct-current motors and generators, etc., to mechanical and electrical and electronic control systems. Right down the line, it explains trouble diagnosing, repair, rewinding and maintenance in a way you can easily understand.

PRACTICE FROM IT 10 DAYS AT OUR RISK!

You don't risk a cent! Use coupon for 10-day examination of this famous home training book.



10-DAY EXAMINATION COUPON

Dept. PS-33, RINEHART BOOKS, Inc., Technical Division,
232 Madison Ave., New York 16, N. Y.

Send me the 560-page **ELECTRIC MOTOR REPAIR** home-training book for 10-day **FREE EXAMINATION**. At the end of 10 days, I will either return book to you postpaid in good condition or send you the sum of \$6.00 in full payment. Include **FREE Study Guide** which is mine to keep whether I buy the book or not.

Name _____

Address _____

City, Zone, State _____

Your Employer's name & address _____

(Outside U.S.A. \$6.50 cash only—same return privilege)

The NEW Model 50 UTILITY TESTER FOR REPAIRING ALL ELECTRICAL APPLIANCES-MOTORS an all-around electrical trouble shooter



- Measures A.C. and D.C. Voltages, A.C. and D.C. Current, Resistances, etc.
- Will measure the current consumption while the appliance under test is in operation. The appliance or utility may be plugged directly into the front panel receptacle. A special pair of insulated clip-end leads is included for motors, etc.
- Incorporates a sensitive direct-reading resistance range which will accurately measure all resistances commonly used in electrical appliances, motors, etc. This range will enable continuity checks and tests for shorts and opens.
- Will test thermostats, radio tube filaments, bulbs, fuses, fluorescent, condensers, switches, field coils, circuit breakers, lighting systems, etc.

Handsome round cornered molded bakelite case 3 1/4" x 5 7/8" x 2 1/4". Complete with all test leads and instructions.

\$13.90

**SHIPPED ON APPROVAL
No Money With Order — No C.O.D.**

Try it for 10 days before you buy. If completely satisfied send \$3.90 and pay balance at rate of \$2.00 per month for 5 months — No Interest or Carrying Charges Added. If not completely satisfied, return to us, no explanation necessary.

SUPERIOR ELECTRONIC CO., INC.

Dept. D-53, 227 Fulton Street, New York 7, N. Y.

Please rush 1 Model 50. I agree to pay \$3.90 within 10 days after receipt and \$2.00 per month thereafter.

Name.....

Address.....

City..... Zone..... State.....

BENJAMIN SUPER CO₂ GAS PISTOL

**MORE Lower Prices
MODELS**

**SAFE • NON-TOXIC • HI-POWER
ACCURATE • ECONOMICAL
CONVENIENT • PRACTICAL**

Easy to operate—Uses low cost Soda Cartridges, Cal. .22 or Cal. .177 Benjamin H-C Pellets & Darts or BB. Write Today for Illustrated Folder of All Models Benjamin Air Rifles and Benjamin Air Pistols. Benjamin Air Rifle Co., 852 Marion St., St. Louis 4, Mo., U.S.A.

**\$13.50
Up**



PUMP WATER FAST!

**DRAIN WASH TUBS, CELLARS, CISTERNS
IRRIGATE—FILL TANKS—DRAW WELL WATER**

Pumps 2800 GPH. 420 GPH at 75' High or 1600 GPH from 25' well. Sturdy, Rustproof Alloy Metal. Six Blade Impeller. Uses any 1/8 to 1/2 H.P. Motor. Will not leak or clog. Fits any garden hose. Immediate Money Back Guarantee. Send Check, M.O., or C.O.D.

**8.95
IN U.S.**

**MOORE MANUFACTURING CO.
SWEDSBORO 2 NEW JERSEY**



YOU SAVE \$\$\$\$—WITH THESE PLAN BOOKS!

Either you or your contractor can build from our plan books. Money spent in pre-planning more than pays for itself in savings and happiness with the finished results. A few dollars now will save you hundreds in construction costs later.

You'll get wonderful, new, exciting ideas from these books—so order today!

New! Ranch and Country Homes, \$2.00
Hundreds of new ideas with accent on ranch and country styles. Just off the press.

Harmonious Homes \$1.00
Mostly homes but some income property for all types of construction. Most flexible home plan book now in print!

Small Homes—Volumes I, II, III, \$1 ea.
Packed with plans for distinctive small homes.

SPECIAL OFFER —

All 5 volumes listed above for only \$4.50
Builder-endorsed Blue Prints as low as \$15 (meets FHA requirements).



COMPLETE HOME PLAN SERVICE 17261-77 OSBORNE ST., NORTHRIDGE 3, CALIF.

NO C.O.D.'S PLEASE

You Can Make DRAIN TILE

**and Build a Profitable
Community Enterprise**

Farm drainage, home building, reclamation projects, highway construction. From these and other sources come the biggest demand for drain tile in history. More local plants are urgently needed.

Millions of dollars' worth of drain tile are used annually. Much of it, ordinarily, is shipped from far distant points. Local manufacturing is economical, logical, profitable. The Champion Drain Tile Machine makes manufacturing easy. Pares production costs. Requires no skilled labor. Makes all sizes from 3" to 12". Yet requires only a moderate investment.

Outstanding Manufacturing Opportunity

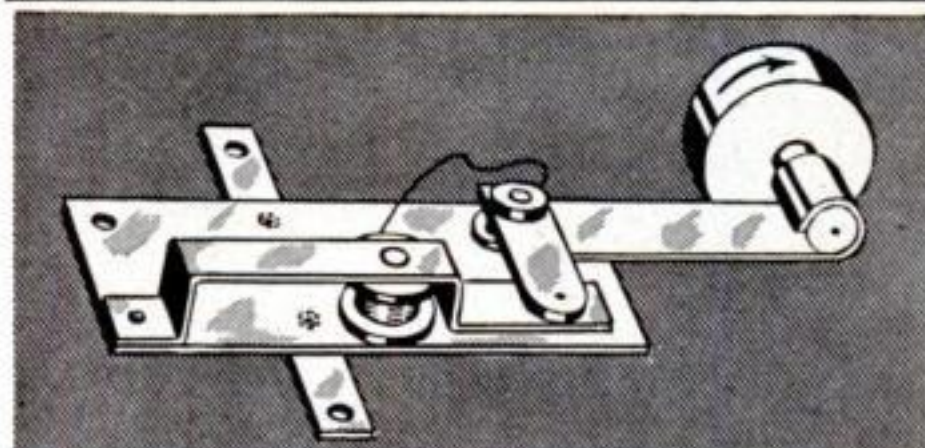
Champion-made cement tile are dense, strong, and truly round. No distortion, no shaling. Worth more than clay tile, but can be sold for less — and still leave a handsome profit margin.

Write for the DrainTile Book. Tells about cement tile as a local manufacturing enterprise. Tells about easy-payment terms. Write today.

Concrete Equipment Company
521 Ottawa Ave., Holland, Michigan



E2



AMAZING NEW ROTOR—MOTOR

Startling new principle for spinning action. Use it for experiments, research development, models and FUN. Battery included, only \$1 postpaid.

THE ELECTRIC GAME CO., Holyoke 5, Mass.

BE A HIGH-PAID MAN IN YOUR COMMUNITY with this LONG NEEDED INVENTION

Earn up to \$10,000 or more per year!
Nothing to invest! Be your own boss!

U.S. Pat.
D 153853
D 153854

A worldwide product needed by every home, business and farm... priced to sell quickly at long profit! Automatic Red Comet goes into action as soon as fire starts... smother's fire without human aid. It's a sales natural.

FREE SALES KIT

Demonstrator units, sales literature, etc., furnished you FREE. Handsome leather-type kit. Tried and proved, it will make you an independent businessman. ACT NOW! Someone in your community will be appointed soon. Write for details, today!

RED COMET, INC.

Dept. 35-F, R. C. Bldg., Littleton, Colo.





Leonard C. Lane,
B.S., M.A.
President of Radio-Television
Training Association,
Exec. Dir. of Pierce School
of Radio and Television

AMAZING NEW TRAINING PLAN

NOW... YOU CAN BECOME A LICENSED* TV TECHNICIAN

LICENSED TV MEN MAKE MORE MONEY

AT NO EXTRA COST! YOU GET A ROUND TRIP TO NEW YORK CITY

FROM ANYWHERE IN THE U.S. OR CANADA—I pay your way to New York and return, PLUS 2 FREE weeks, 50 hours of advanced instruction and shop training at the **PIERCE SCHOOL OF RADIO & TELEVISION**. You use modern electronics equipment, including student-operated TV and Radio stations. You go behind the scenes of New York's big Radio-TV centers, to study first hand. And I give you all this AT NO EXTRA COST! (Applies to complete Radio-TV course only.)

Only RTTA makes this amazing offer.

EXTRA FEATURES THAT MEAN MORE MONEY FOR YOU!

Thousands of new job opportunities will be available for you right in your own state, now that the government has lifted restrictions on new TV stations. My simple, successful methods can PREPARE YOU NOW to take your place in America's booming TELEVISION and Electronics industries... help you get the success and happiness that you always wanted out of life. You learn the practical, easy way by using actual parts and equipment in the 15 big Radio-TV kits I send you, including a COMPLETE TV RECEIVER... yours to build and keep.

My Advanced Training Prepares You For Better Jobs Then, after you finish your training for a position as a full-fledged TV Technician—where you can write your own ticket and choose from dozens of fascinating careers—I don't stop there! I continue to train you—AT NO EXTRA COST—to qualify for even better pay in the BETTER JOBS that demand FCC licenses, with my...

FREE* FCC COACHING COURSE
PREPARES YOU AT HOME FOR YOUR
FCC LICENSE
THE BEST JOBS IN TV AND RADIO
REQUIRE AN FCC LICENSE
Given to every student at NO EXTRA COST after
TV Theory and Practice is completed.

ATTENTION! VETERANS!

MY SCHOOLS FULLY APPROVED TO TRAIN VETERANS UNDER NEW G. I. BILL! If discharged after June 27, 1950—CHECK COUPON BELOW! Also approved for RESIDENT TRAINING in New York City... qualifies you for full subsistence allowance up to \$160 per month.



SET-UP YOUR OWN HOME LABORATORY WITH THE 15 BIG TELEVISION-RADIO KITS WE SEND YOU (At No Extra Cost)

YOU BUILD AND KEEP ALL THESE UNITS

—INCLUDING BIG SCREEN TV RECEIVER,
plus Super-Het Radio Receiver,
R.F. Signal Generator, Combination
Voltmeter-Ammeter-Ohmmeter,
C-W Telephone
Receiver, AC-DC
Power Supply.
Everything
Furnished
Including
All Tubes.



NOW! Advanced FM-TV Training
For Men Who Know Radio
Prepares You For Higher Pay Jobs
In A Few Months
COMPLETE theory and practical training
course... complete with kits
including large screen TV receiver.
FCC License Coaching Course Included FREE.

I GET MY GRADUATES GOOD PAYING JOBS



"As Merchant Ship Radio Officer, I receive \$867. for 40-day trip. Your training helped me get this fine position."
—Stanley Nawrocki



"I now hold a fine air-
lines position at La-
Guardia Field, New York
City, thanks to your ex-
cellent training."
—Joseph Rosenberg



"Your excellent instruc-
tion helped me get my
present job as an air-
port radio mechanic for
American Airlines."
—Eugene E. Basko



"Thanks to your train-
ing, I qualified for a
good job as a Receiver
Tester at Federal Tele-
phone and Radio."
—Paul Frank Seier

Many others working at NBC, RCA, CBS, Dumont, Philco,
Emerson, Admiral and other leading firms.

RADIO-TELEVISION TRAINING ASSOCIATION

1629 Broadway, Radio City Station, New York City 19, N. Y.
Approved as a Correspondence School
under the laws of the State of New York



**BOTH
FREE**
New
Illustrated
Book plus
Sample
Lesson

NO SALESMAN WILL CALL!

Mr. Leonard C. Lane, President
RADIO-TELEVISION TRAINING ASSN.
1629 Broadway, Radio City Station
New York 19, N. Y.

Dept. P-3

Dear Mr. Lane:

Mail me your NEW FREE BOOK and SAMPLE
LESSON that will show me how I can make BIG
MONEY in TELEVISION. I understand I am un-
der no obligation and no salesman will call.

Name _____ Age _____

Address _____

City _____ Zone _____ State _____

I am interested in: ☐ Radio-TV ☐ Advanced FM-TV
VETERANS: If qualified under new G.I. Bill, check
here ☐



Precision ground. Featherweight. Achromatic. All are UNI-COATED*. Moisture-Dust proofed. Compare Price-Quality then **BUY UNITED.**

6x30 15 oz. \$34.50
7x35 5" x 6 1/2" 45.50
7x35 CENTER FOCUS 49.50
7x40 CENTER FOCUS 52.50
7x50 31 oz! Bargain! 36.00
7x50 CENTER FOCUS SALE 39.50
8x30 18 oz. 39.50
8x40 More Power 54.50
8x40 CENTER FOCUS 59.50
10x30 Compact Power 45.00
10x50 CENTER FOCUS 59.50
12x50 CENTER FOCUS 67.50
16x50 27 oz. Tremendous power 69.50

VEST POCKET SIZE MODELS
6x 4 1/2 oz. Chrome & Black \$16.95
7x All Chrome 19.95
10x "TITAN MIDGET" 6 1/2 oz. 24.95
Internal surfaces of VITAL front and rear Achromatics are COATED!



**WORLD'S
LIGHTEST**

8x30 4"x5 1/4" 11 oz. \$39.50
7x35 5"x6" 14 oz. 57.50
20x56 8 1/2"x6 3/4" 27 oz. 99.50

Made in Germany, optical center of the world! "Whisper Weight." CENTER FOCUS prismatic binoculars with individually focusing right eye piece. Follow moving objects faster, easier. Enjoy clearer, sharper, brighter images.

**15x to 40x
6 TELESCOPES IN ONE!**

American made Wollensak telescope. Instant focusing at 15x, 20x, 30x and 40x, etc. Turn power tube to click—no guesswork. Telescope measures 9" closed, 27" when extended. Weighs 18 oz. Rustproof chrome tubes. All 12 optic surfaces are COATED. See 22 bullet holes clearly at 500 feet. Use also for astronomical observation. \$30.75 price includes fine leather case. Federal Tax Free!

20x TELESCOPE 7 1/2 oz. 8 3/4" closed, 13 1/2" extended. Inside of front Achromatic and rear Ocular Lens is COATED! Federal Tax Free—\$8.95

UNI-COATED* Assuring buyers that applications of magnesium fluoride have been applied to the internal surfaces of the VITAL Prisms and front and rear ACHROMATICS assuring users brighter, clearer, sharper images than ever before.

FROM 3 CONTINENTS come UNITED'S "BEST-BY-TEST" binoculars. Made in Japan (except where noted otherwise) by skilled optical craftsmen, of quality, precision materials to rigid UNITED requirements. It explains why the quality is so HIGH and the price so LOW.

FREE 3 color 40 page catalog listing over 75 different models UNITED, Zeiss, Hensoldt, Etc. from \$14.95.

30 DAY NO RISK TRIAL. If not fully satisfied, return for full refund. Cash orders postpaid. C.O.D.'s require \$2.00 deposit. Add Federal Tax. Prices all include handsome genuine leather case, straps!

UNITED BINOCULAR CO. United Bldg.
9043 S. Western Ave. Chicago 20
Dept. ARF-8116

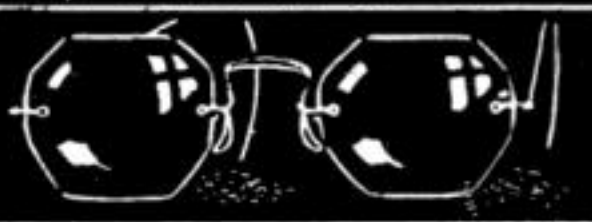
**DEALERS
WANTED**

Display Sales Rooms open Mon. thru Fri. 9:00-5:30

EYE GLASSES by MAIL As low as \$1.95

**WRITE for FREE
CATALOG with 14
LENS SAMPLE CARD**

Thousands of
Customers
Est. 1939



QUALITY READING-MAGNIFYING OR
BIFOCAL GLASSES FOR FAR AND NEAR

ADVANCE SPECTACLE COMPANY, Inc.
537 S. Dearborn St., Dept. SP-3 Chicago 5, Illinois

This seal etched in
your binocular certi-
fies it is a UNITED
"Best-By-Test" UNI-
COATED* binocular.
Your guarantee of
satisfaction.

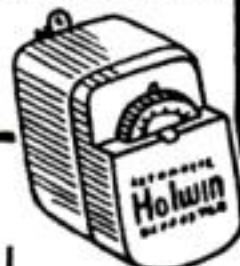


BUY
UNITED
and
BE
SURE!

NEW AUTOMATIC DEFROSTER

ONLY
\$7.95

**YOU MAKE UP TO \$4
ON EVERY FAST SALE!**



Millions of defroster attachments sold at \$12.50. Now—with new guaranteed HOLWIN at \$7.95, sales breaking all records. Men selling as many as 10 and 12 a day—right now. Your profits big—as high as \$4.00 cash on every sale. Converts any old style refrigerator into automatic defroster in 10 seconds. Just plug in. Terrific demonstrator. Women crazy for it at this price. Sell 4 out of 5 calls.

NO CHARGE for complete selling kit and offer of sample demonstrator. Rush name. If you've ever sold anything you'll clean up with HOLWIN. All mailed Free. Send name today for \$140-a-week opportunity and offer of demonstrator.

DEFROSTER SALES CO., 415 LaSalle St., Dept. H-93
Chicago 10, Ill.

FREE

SEND NAME

Rush name for free sales kit and offer of demonstrator sample. Sales skyrocketing. Send name. Get in on big money.



FANS! FANS!
ALL TYPES — ALL SIZES



MAKE YOUR OWN ATTIC FAN

with patented Torrington belt drive factory balanced blades, the finest money can buy. Shipped knocked down. Assemble in 10 minutes.

BLADE DIA.	C.F.M.	R.P.M.	H.P. REQ.	PRICE
24	5560	625	1/4	\$12.75
30	7125	425	1/4	14.75
36	10100	370	1/2	16.95
42	12500	295	1/2	19.95
48	16300	260	1/2	21.95

Reconditioned G. E. 1/4 H.P. Rubber Mount Motor \$9.75

Kitchen Ventilators, Exhaust Fans, Attic Fans, Blowers, Heat Boosters, Desk Fans, Window Fans, Blades, Guards, Shutters, Motors, etc.

Dealers inquiries invited

EDWARDS BROS. ESTAB. 20 YEARS

WESTAIR FAN and BLOWER CO.

5650 Grand River Ave., Dept. P, Detroit 8, Mich.



FREE FOR ASTHMA

If you suffer with attacks of Asthma and choke and gasp for breath, if restful sleep is difficult because of the struggle to breathe, don't fail to send at once to the Frontier Asthma Company for a FREE trial of the FRONTIER ASTHMA MEDICINE, a preparation for temporary symptomatic relief of paroxysms of Bronchial Asthma. No matter where you live or whether you have faith in any medicine under the sun, send today for this free trial. It will cost you nothing.

Frontier Asthma Co.
462 Niagara St.

557-T Frontier Bldg.
Buffalo 1, N. Y.

IT WILL HAPPEN TO YOUR TV!

Do you know 8 out of 10 TV service calls are for tube failures! If any tube is burnt out, you get a poor picture or no picture or sound at all! Now, at last, any set owner can test all modern tubes for burnt out filaments! With Amazing "MIJIT FILAMENT TESTER". It's easy to find out which tubes in your tv, radio or phonograph, are burnt out. Simply plug any tube into "MIJIT TESTER". If neon indicator doesn't glow—tube is burnt out. Buy new tube from TV or Radio Dealer for small amount, and insert into set as you do a fuse! Saves service fees! Saves money and inconvenience! Pays its small cost many times. Send only \$6.95 for "MIJIT TESTER" with complete simple directions, postpaid, tax paid. Money back in 10 days if not satisfied.

FREE of extra charge if you act now! For prompt action we will include 135 page TV FIXIT MANUAL! Shows you which tubes are causing trouble!

Write today! To save C.O.D. fee send CASH, CHECK OR MONEY ORDER.

TELERA Corporation

Box 6802

Dept. E

Chicago 80, Ill.



**AMAZING
MILITARY
MINIATURES!**

PERFECTLY SCALED
PRECISION DETAILED

SEND 35c TODAY! FOR COMPLETE CATALOGUE

PLANES



KINCIPHER 750

**Authenticast
SHIPS**



DESTROYER ESCORT
\$1.00

TANKS



WALKER BULLDOGS \$1.75

Miniature models that duplicate those used in U.S. military pre-combat training. Full line of replicas of tanks, ships & planes seen in current combat.

COMET METAL PRODUCTS CO., INC. RICHMOND HILL 18, L.I. N.Y.

MARVEL keeps NEW CARS NEW LONGER... USED CARS IN USE LONGER...

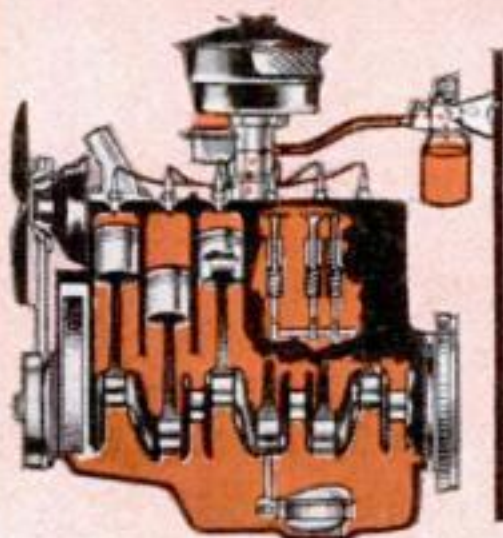


Drivers in the know . . . know Marvel is the finest lubricant you can put into your crankcase and gas tank.

And that goes for both new cars and used cars. Age doesn't matter. What does matter is the way Marvel registers — in the lower service charges you shell out at inspection intervals.

Try a can of Marvel in your engine today. See if your car doesn't run better, longer . . . right from the start!

**MARVEL MYSTERY OIL—
THE MECHANIC'S CHOICE
FOR THIRTY YEARS**



Marvel in the crankcase lays a strong, heat-resistant film of oil on all moving parts . . . eliminates hydraulic valve clatter . . . provides ring seal . . . cleans, cools and protects bearings and vital upper cylinder regions. The car runs for many more engine miles per dollar.

Install a Marvel Inverse Oiler for direct lubrication to the heart of the engine. Feeds in direct proportion to horsepower curve through inverse ratio to manifold vacuum. No other oiler works on this principle! Fully adjustable. Easy to install. Fully guaranteed.

For more information, write:
EMEROL MANUFACTURING CO., INC.
Dept. 103, 242 W. 69th St., New York 23, N. Y.



Make \$3.00 AN HOUR AND MORE IN FULL OR SPARE TIME! SHARPENING LAWN MOWERS IN YOUR GARAGE or BASEMENT!

READ
WHAT THIS
CUSTOMER
says:



"I am buying a home and my Universal is going to be a tremendous help paying for it." Another Universal owner says, "I have taken in last season more than \$3500.00." Another "During this year I sharpened 602 mowers." Spare time or full time, you too, can make big money in your own business and be your own boss. No other lawn mower sharpener has the advantages that Universal offers. That's why owners tell glowing success stories in this profitable business. Write today for full details of our proved success plan.

ONLY ON THE UNIVERSAL LAWN MOWER GRINDER

can the inside face and edge of the stationary blade, and all reel blades, be ground to proper clearance

ALL IN ONE SET-UP

WITHOUT REMOVING ANY BLADE FROM THE MOWER

Men with 20 and 30 years of experience have tried them all and acclaim the UNIVERSAL Grinder best.

OUR PLAN GIVES ALL THE PROVED SHORT-CUTS TO SUCCESS

SHOWS YOU HOW STEP BY STEP
From the successful experience of hundreds of our customers, we have evolved a basic plan, simple and easy to follow, which leads you to quick success in either spare or full time.

ROGERS MFG. CO.
DEPT. P-33, LINDSEY, OHIO

SEND THIS COUPON NOW

ROGERS MFG. CO., Dept. P-33, Lindsey, Ohio

Please send me full details about the profit possibilities of Lawn Mower Sharpening.

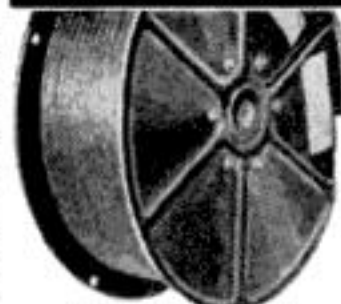
NAME _____

ADDRESS _____

CITY _____ STATE _____

THIS WIRE HAS NOT BEEN OVERSEAS
This high quality two conductor communication wire offered in No. 18 and No. 22 gauge is ideal for intercoms, lead-ins, telephones, indoor and outdoor speaker extensions, doorbells, signal and burglar alarm systems, shot firing, etc., etc. **SAMPLES ON REQUEST.**

U.S. GOV'T CLOSEOUT



NEW WAR SURPLUS

Mfgd. to rigid Signal Corps specifications

Wire

U. S. Signal Corps
Communication Wire

TWISTED TWO CONDUCTOR \$5.00
No. 18 STRANDED per 1000 ft.
\$7.50 per 1300 ft. TWISTED TWO CONDUCTOR No. 22 STRANDED

Won't Last Very Long at These Prices

Stock Up Now—Subject to Prior Sale—Order Today
W-110-B—TWO CONDUCTOR #18 STRANDED (four steel and three copper strands) rubber covered plus weatherproof cotton braid and twisted. 5,280 feet per steel reel. **Only \$3.50 per thousand feet on 5,280 foot reels or \$18.25 per reel.**
W-130—TWO CONDUCTOR #22 STRANDED and twisted (one copper and six steel strands) in your choice of rubber or plastic insulation. 10,000 feet per steel reel. **Only \$3.50 per thousand feet on 10,000 foot steel reel or \$35.00 per reel.** (Note: Steel strands are incorporated for extra tensile strength and are tinned and treated for efficient conductivity.)
All these way below market prices, our stock will not last long. Take advantage of this exceptional closeout and **STOCK UP NOW!**

Prices F.O.B. Chicago. Include approx. postage on orders paid for in advance. C.O.D. orders enclose 25%, balance sent C.O.D.

U. A. S. Corp.

Dept. PS-3, 5637 W. 63rd Pl.
Chicago, Ill.

Watch Repairing Pays Big Money Learn at home



Watch repairers in great demand. Train step-by-step in 10 easy lessons. We furnish all tools and 15 jewel watch and practice movement. Turn spare time into cash. A licensed school. Low cost. Send for FREE book today.

ILLINOIS SCHOOL OF WATCH REPAIRING
2870 Elston Ave., Dept. PS-33, Chicago 18, Ill.

REAL ESTATE BE A BROKER

PAYS BIG! SEND FOR FREE, BIG, ILLUSTRATED CATALOG NOW! Graduates report making substantial incomes. Start and run your own business quickly. Men, women of all ages, learn easily. Course covers Sales, Property Management, Appraising, Loans, Mortgages, and related subjects. **STUDY AT HOME** or in classrooms in leading cities. Diploma awarded. Write TODAY for free book! No obligation.

FREE BOOK TELLS HOW

WEAVER SCHOOL OF REAL ESTATE (Est. 1936)
Suite 300 Law Bldg. Dept. PS Kansas City, Mo.

How to Make Money in PHOTOGRAPHY

EARN WHILE YOU LEARN AT HOME
Unique, low-cost LEARN-BY-DOING method and INDIVIDUAL attention trains you quickly at home in spare time. Start making money in photography at once! We show you how. Our 43rd year. Big FREE colorful book gives full facts. Write TODAY! Resident Training also available.
NEW YORK INSTITUTE OF PHOTOGRAPHY
Dept. 5, 10 W. 33 St., New York 1, N.Y.

Send for FREE BOOK

G.I. WINS 69% PAY BOOST!

"I was an unsettled veteran. Then I took the I. C. S. course in Drafting and Machine Design. I.C.S. are letters with meaning. I went from tracer to draftsman. My salary increased 69%." Allan Wold credits I.C.S. for his success. You will, too, when you find how fast I.C.S. training pays off. 391 courses—all industry recognized. Mail coupon. It brings you free catalog and 36-page book, "How to Succeed."

INTERNATIONAL CORRESPONDENCE SCHOOLS

Dept. 7638-N, Scranton 9, Pa.

Please send free success book plus catalog on course checked:

- | | | |
|--|--|---|
| <input type="checkbox"/> Aeronautics | <input type="checkbox"/> High School | <input type="checkbox"/> Accounting |
| <input type="checkbox"/> Automobile | <input type="checkbox"/> Commercial Art | <input type="checkbox"/> Mechanical Engineering |
| <input type="checkbox"/> Drafting | <input type="checkbox"/> Business Administration | <input type="checkbox"/> Electrical Engineering |
| <input type="checkbox"/> Practical Electrician | <input type="checkbox"/> Architecture | <input type="checkbox"/> Radio-TV-Electronics |
| <input type="checkbox"/> Other subject _____ | | |

Name _____ Age _____

Address _____

Mandl's

TELEVISION
SERVICING

"Excellent"

P. F. Service

"Of immense help"
Radio Service Dealer

"Keep this book
near your solder-
ing iron"
Radio-Electronics

You'll learn

simple signal tracing pro-
cedures

how to improve reception
in fringe areas

How to use the oscilloscope
and other test equipment

How to trouble-shoot keyed
A.G.C. and synchroguide cir-
cuits; align I.F. stages

And many trade tricks for
diagnosing troubles in mini-
mum time

TELEVISION SERVICING

► **pinpoints the trouble for you**

► **shows you exactly how to correct it**

YOU'LL EASILY LEARN FROM THIS BOOK

It is written in the clearest, simplest, most practical terms by a man who is nationally known for his helpful articles on radio and TV servicing. From these step-by-step explanations and illustrations you'll clearly understand just how each unit in the TV receiver functions, how it is set up by the various manufacturers, what flaws may occur in it, what points in the circuitry cause these flaws, how they affect the other components in the unit, and how they show up on the TV screen.

The latest circuits and innovations, including the proposed color systems and techniques for servicing VHF-UHF receivers are included. All the faults likely to occur, including those hard-to-find troubles, are fully dealt with. And you won't be confused by unnecessary theory. Only the essentials actually needed for practical servicing are given, in clear, easy-to-follow terms.

A COMPLETE MASTER TROUBLE INDEX

makes it easy for you to locate the source of trouble quickly. In the form of a handy chart it lists the various hums, sound distortions, streaks, bars, focus defects and 100 other trouble symptoms in sound and picture together with the possible causes of each and the page on which servicing instructions are given.

HUNDREDS OF HELPFUL ILLUSTRATIONS

Original photographs, especially made for this book, show you what appears on the screen when there is a defective picture tube, diathermy interference and dozens of other causes of imperfect pictures. Scores of scope patterns aid you in signal tracing and analysis of circuit performance. Hundreds of large, clear schematics, many from the major manufacturers, show you every detail of circuit arrangement.

- If you want to learn how to adjust your own set, this book will show you exactly how to get the results you want.
- If you want to go into profitable, professional TV servicing, this book will teach you what you have to know.
- If you are in TV servicing, this book will help you get the most satisfactory results in the minimum time on any job.

Eagerly chosen by servicemen everywhere as the most helpful guide yet published, highly praised by TV authorities, you'll want to see this book. Mail the coupon today for your on-approval copy.

Now, for the first time,
the reliable information
you need on

HEARING AIDS

to select and use a hearing
aid most beneficially.
to make adjustments, re-
placements and repairs.

In his new book Matthew Mandle brings together the information needed by both the user and the serviceman on the major types of hearing aids now being manufactured. Here are the facts that will enable you to select the aid best suited to your type or degree of deafness and to use it most effectively; together with clear, detailed, illustrated instructions on servicing.

SEE IT ON APPROVAL

SEE THEM ON 10-DAY FREE TRIAL

The Macmillan Co., 60 Fifth Ave., New York 11

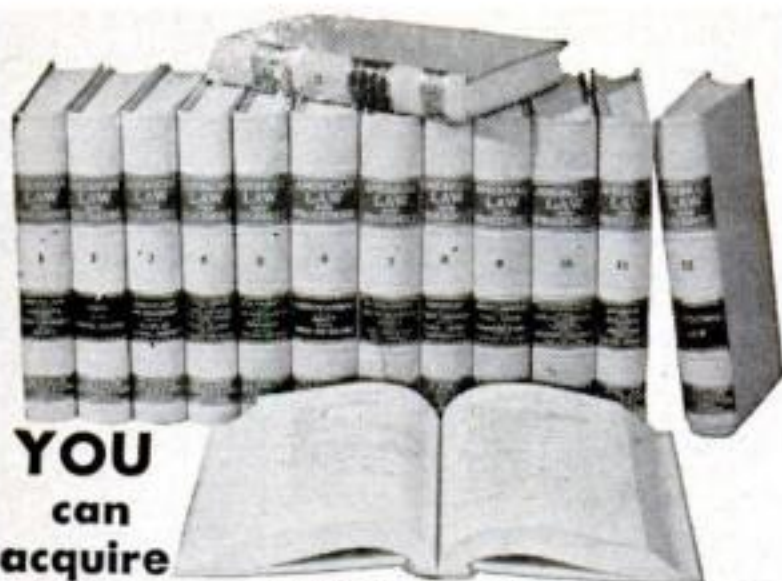
Please send me the books checked below. I will either remit in full or return the books in 10 days.

☐ Mandl's Television Servicing \$5.50 ☐ Mandl's Hearing Aids \$3.50

Signed

Address

This offer good only within continental limits of U.S.A.)



**YOU
can
acquire**

LAW NIGHTS AT HOME! LL. B. DEGREE

LaSalle's famous Law Library—used as reference in many Law libraries and Law offices—has enabled thousands to master Law surprisingly fast, in spare hours at home, for business and professional advancement.

These 14 remarkable volumes, compiled by leading professors and lawyers, cover the whole basic field of Law in condensed, orderly, simplified manner.

You advance rapidly with this great library, plus special lectures furnished. We guide you step-by-step with personalized Problem Method of instruction... you learn by doing—handling legal problems—not by memorizing rules.

Send for two FREE 48-page booklets, "Law Training for Leadership," and "Evidence," answering questions about Law and its value to you, and telling how LaSalle Law graduates are winning rapid advancement in business and public life. Mail coupon below. No obligation.

LA SALLE EXTENSION UNIVERSITY A Correspondence Institution

417 S. Dearborn St. Dept. 383-L Chicago 5, Ill.

Send me your two FREE booklets described above, without obligation.

Name..... Age.....

Street.....

City, Zone & State.....

MIDGET TRACTOR READY!

CONTRACTORS: load skip mixers, small trucks, level earth! **MUNICIPALITIES:** clear snow, back-fill park-way trenches, control weeds! **FOUNDRIES:** many uses! **FARMERS, ESTATES:** clean barn, till soil, plow snow, etc.



**6 FOOT
LIFT!**

Also A Powerful Bulldozer

Mead's "MIGHTY MOUSE" HI-LIFT Tractor-Dozer pivots within its own length. Weighs only 1300 lbs. yet dozes and hydraulically lifts a 5 cubic foot capacity bucket up to 6 feet! Machine only 40 1/2" wide, 95" long. 2 speeds forward—1 reverse. 6 H.P. engine. M6-HI-LIFT'S size, maneuverability make it ideal for contractors, municipalities, railroads, farmers, estate owners—where larger units cannot work. Accessories such as dozer blade, mower, etc. available. Write for Free Circular. (Dealers write!)

**MEAD
SPECIALTIES
COMPANY**
Dept. T-1333

4114 No. Knox Avenue,
Chicago 41, Ill.

NEW "PAINT PEN"

PAINT STRIPING TOOL

Works like a Fountain Pen
Stripes with Paint instead of Ink!

This amazing new "PAINT PEN" is a Paint Striping Tool that makes it easy to do expert striping on furniture, bikes, model planes, autos, signs, toys, linoleum, wall board, etc. Makes plain, painted walls look like tile. Paint straight, curved, circular or evenly spaced parallel lines the same way a professional painter does. Simply fill Tubular Glass Paint Fountain with any color paint and wheel tip feeds paint evenly. Tips interchangeable — Jaws split apart for easy cleaning. Tool complete with tip for 1-16 inch stripe only \$1.00 postpaid. Other complete tools with 1-64, 1-32, 3-64, 5-64, 3-32, 1-8 inch tips. \$1.50 ea. Extra tips, 75c each. Complete KIT with 7 tips, \$5.00. C.O.D.'s postage collect. Here's the handiest tool in your whole painter's kit. Get yours today.

DEALERS
PAINT STRIPING TOOL
packed in display cartons
of 1 doz. Fast, profitable
seller. Write for illus-
trated circular, discounts

Only
\$1.00

WENDELL MFG. CO., Dept. 23
4234 LINCOLN AVENUE, CHICAGO 18, ILL.

**Paint
STRAIGHT,
CURVED OR
PARALLEL LINES**

Home Craftsmen

Just the tool you've been waiting for! New Paint Striping Tool gives "professional" results every time, yet simple and easy to use as a fountain pen. Adjustable guide keeps lines straight as an arrow. Just as easy to make curves or free hand designs. Adds new beauty and finished look to everything you paint. Send \$1 now!

Secrets of VENTRILOQUISM Now Revealed!



Easy to learn in 60 to 90 days with our Home Study Course. **RESULTS GUARANTEED.** Make Money! Be Popular! Have Fun! Big Opportunity! Radio, Television, Stage Appearances! For Free Information regarding price and terms, WRITE. You must state your age. Dummy Catalog 25c. **FRED MAHER SCHOOL OF VENTRILOQUISM** Box 36, Studio 3 Kensington Station Detroit 24, Michigan

New Way to Improve YOUR ENGLISH



A command of effective English gives you added advantages and better opportunities. Poor English handicaps you more than you will ever realize. You can improve your English through Sherwin Cody's 100% self-correcting invention. If you are ever embarrassed by mistakes in grammar, spelling, punctuation, or pronunciation, this new free book "How You Can Master Good English in 15 Minutes a Day" will prove a revelation to you. Send for it now. It is free. No obligation. No agent will call. Address **SHERWIN CODY COURSE IN ENGLISH**, 183 B & O Building, Rochester 14, N. Y.

HAWAIIAN WIGGLER #1

**WORLD-FAMOUS
FISH-GETTER**

Deep runner. No snag-up in pads and brush. Easy to cast. Rubber Hula Skirt acts alive. At your dealer 5/8 oz. or 1/4 oz., \$1.15 each.

FRED ARBOGAST & Co., Inc.
2313 W. North St., Akron 3, Ohio

FREE WRITE TODAY FOR YOUR BIG FREE ARBOGAST COLOR CATALOG—FULL OF PICTURES OF CATCHES

GET BIG PAY FOR EASY WORK IN TELEVISION

It's easy to learn TV servicing at home. Make money spare time while training. You build a 17-inch set and test instruments. Parts sent. Free job placement. Thousands of jobs waiting. **Mail coupon today!**

COMMERCIAL TRADES INSTITUTE

1400 Greenleaf Ave., Chicago 26, Ill. Dept. T1-3

Send valuable free booklet on course checked:

- | | | |
|---|--|--|
| <input type="checkbox"/> TELEVISION | <input type="checkbox"/> Refrigeration | <input type="checkbox"/> Building |
| <input type="checkbox"/> Auto Mechanics | <input type="checkbox"/> Upholstering | <input type="checkbox"/> Construction |
| <input type="checkbox"/> Body-Fender Repair | <input type="checkbox"/> Drafting | <input type="checkbox"/> Foremanship |
| <input type="checkbox"/> Diesel Mechanics | <input type="checkbox"/> High School | <input type="checkbox"/> Factory Mngt. |

Name..... Age.....

Address.....

City..... State.....

LOOK!

Precision Binoculars at
CUT PRICES



Coated • Prismatic • Color Balanced

SPECIAL!

16 x 50 mm

COATED
CENTER
FOCUS **66.50**
TAX PAID

**TRY
AT OUR
RISK!**

LOOK!

10 x 50 mm

COATED
I.F. **49.95**
TAX PAID

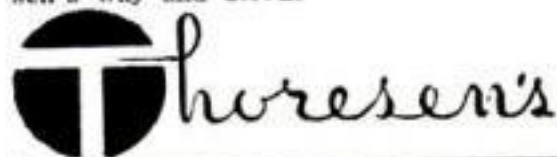
Absolute MONEY BACK Guarantee!

Look to old reliable Thoresen's for fine Binoculars at deep-cut prices. Every binocular listed is **COATED, ACHROMATIC and PRISMATIC!** Best of all, they are **FOCUS BALANCED**, a Thoresen feature that gives enjoyable viewing without annoying aberrations. All have pig-skin or fine calf carrying cases & 2 straps. We defy ANY competitor to match this quality or prices!

NOTE—ALL PRICES FULLY TAX PAID—NOTE

- 7 x 50 mm Individual Focus (No. 157) **33.95**
Tax PAID
- 7 x 50 mm Center Focus (No. 153) **39.85**
Tax PAID
- 6 x 15 mm Tiny Pocket Size (No. 154) **16.75**
Tax PAID
- 8 x 30 mm Center Focus (No. 146) **38.50**
Tax PAID
- 20 X Telescope, Light Pocket Size. **8.65**
POWERFUL!

Send check or money order for quick prepaid delivery. COD's plus post. 5 Day Money Back Guarantee! Why pay more? Buy the Thoresen's way and **SAVE!**



352 Fourth Avenue
Dept. 7-C-500
New York 10, N. Y.

GERMAN PRECISION



**.22 BLANK
PISTOL**

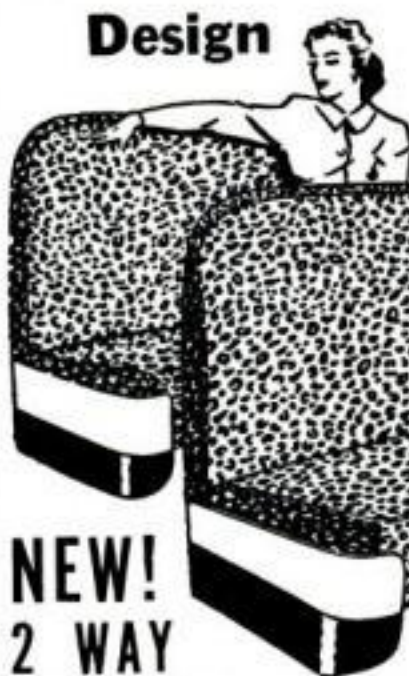
**Six Shot Repeater
AUTOMATIC**

For fun . . . sports . . . protection against night prowlers! Precision made in the high traditions of German guncraft! Exact dimensions, finish and design of death-dealing automatics. Uses only .22 cal. harmless blanks. Specially designed chamber gives terrific percussion audible at enormous distances, enough to frighten the daylight out of any "character." 6 shot fully automatic magazine. Empties ejected automatically. Safety catch. Carbon steel construction; deluxe **CORDOVAN** handle. No police permit needed. Pistol only **9.95**. Cartridges available everywhere. Send check or m.o. for immediate delivery. Money-back guarantee.

THORESEN'S 352 Fourth Avenue, Dept. 7-C-111,
New York 10.

GLORIFY YOUR CAR WITH THESE LEOPARD or COBRA REVERSIBLE

Design



SEAT COVERS
For all cars, all makes,
all models

**SAVE
\$4.00
NOW**

NEW!

2 WAY

REVERSIBLE!

- Water & Grease Proof
- Fully Fire Retardant
- Glamorous Silky Finish

**TRY IN YOUR
CAR 5 DAYS
AT MY RISK!**

**BUY DIRECT
2.95
EACH**

NOW! Enjoy these beautiful seat covers for 5 days at **MY** risk! You'll be thrilled with the fine design made famous by Cadillac. **SAVE** up to \$4.00 on each seat cover you buy! See how they beautify your car and protect the upholstery. Yes! Try them right in your own car **WITHOUT OBLIGATION**—entirely at **MY** risk! If not delighted your money comes right back—no questions asked. You have everything to gain—**NOTHING** to lose!

NEW ADJUSTOMATIC FEATURE! Slide on . . . slide off . . . in 1 minute. So easy and fast to install! **NEW ADJUSTOMATIC** feature—simply slide on or off in 1 **MINUTE FLAT!** You'll love the feel of this genuine **VINYL** material! It's so silky-looking . . . yet **TOUGH!** Resists flame, water, grease, crime and soiling by babies and pets.

LEOPARD-COBRA PATTERN GIVES NEW BEAUTY TO YOUR CAR

No matter how soiled or worn out your upholstery is . . . no matter if you have a 39 Chevy or a 53 Cadillac, these magnificent **ADJUSTOMATIC** seat covers will add new glamour to your car! Your friends will never imagine you paid so little for these quality covers!

REVERSIBLE 2 WAY PATTERN GIVES YOU DOUBLE USE!

This handsome Seat Cover can be used **TWO** ways—**INSIDE** or **OUT**. It leads 2 lives . . . change over to suit your every whim and desire. You will be delighted with the smart **LEOPARD** or **COBRA SNAKE** pattern. Well made for long satisfying service.

SPECIAL SAVINGS OFFER!

Buy your **ADJUSTOMATIC** Seat Covers by mail—**DIRECT** from the "Seat Cover King." No need to pay up to 6.95 each. Our special volume price only **2.95** each or set of **TWO** for front and rear for only **5.00**. You need send no money. Pay the low, low price plus postage on delivery. **SAVE MORE** by sending check, money order, and they will be shipped **POST-PAID**.

Your Money Back If Not Satisfied!

When you receive your **ADJUSTOMATIC** Seat Covers, look them over carefully. Note the special construction details. Then put them in your own car. Note how the rich, glamorous pattern highlights the interior of your car. Feel the Vinyl material. Use them for **5 FULL DAYS**. You must be delighted in every way. If for any reason in the world you are not thrilled, return them for a **FULL REFUND** of the purchase price. Don't lose this golden opportunity! Take advantage of these low **SALE** prices! Rush the coupon **NOW!**

FREE!

**OF EXTRA COST
Your Own Car
Monogram**



Handsome, **GOLDEN HUED**, embossed metal initial adds note of distinction to your car. No screws, no drilling. Simply press on—adheres to all metals, plastic, glass, leather, wood. Never mars car finish. **GIVEN FREE** of extra cost with every order for **TWO** seat covers. Yours to **KEEP** even if you return covers for refund! Mention letter desired. Price without covers—only **\$1.00**.

MOTO-MATIC COMPANY, 127 West 33rd Street, Dept. 7-C-150, New York 1, N. Y.

MOTO-MATIC COMPANY, Dept. 7-C-150

127 West 33rd Street, New York 1, N. Y.

"MR. SEAT COVER KING": Rush . . . sets of **REVERSIBLE SEAT COVERS**, as described below, on **5 DAY TRIAL**. I will pay low price plus postage on arrival. You are to refund full price if I am not satisfied in **EVERY** way! The **INITIAL** is mine to **KEEP** in any case!
☐ Send **FRONT** seats—**2.95** ☐ Send **BACK** seat—**2.95**
☐ Send set **FRONT & REAR** at cut price of **4.95**
Write initial desired here.

Car **MODEL** **YEAR** Full or Split front

NAME

ADDRESS

TOWN **STATE**

MARCH 1953 45

FREE TO NEW MEMBERS... IMPORTS

FROM FOREIGN LANDS

NOW! EASY TO START YOUR OWN
BIG-PROFIT IMPORT-EXPORT
BUSINESS AT HOME!

FREE to new members of the International Traders Guild—many unusual, useful products from France, India, Germany and other foreign lands, and trade bulletins listing hundreds of import bargains. World trade boom offers new, big-money opportunities for men and women! Now you can import at low foreign prices for buyers in your locality at high U. S. prices.

BUY-SELL, WORLD WIDE, WITHOUT CAPITAL.

Big profits possible, no investment in goods. Operate a world-wide mail-order business from home, spare or full time. Also, for your own use, big savings on clothes, tools, gems, antiques, watches, cameras, china, silk, toys, etc. (see examples at left). No matter where you live World Trade can be carried on—in small towns or large cities, anywhere. World travel opportunities. Established World Trader shows you how. Teaches you quickly at home.

START AT ONCE - IMPORT PROFITABLE ITEMS

Complete training includes many exciting imports that come to you from round the world AT NO EXTRA COST. Go after big profits NOW—importing and exporting. No previous experience is required. 2000 members in 42 countries. 7th successful year. Free details, write Now. Airmail reaches us overnight.

"We operate a profitable WORLD TRADE BUSINESS FROM OUR HOME...Thanks to Mellinger"

Mr. and Mrs. H. F. BEKE, N.Y.

The MELLINGER CO., Exporters-Importers, Suite 243 1717 Westwood Blvd., Los Angeles 24, Calif



Pepper Mill 27¢

Padlock 3 1/4¢



Beer Stein 56¢



Lock 65¢

Im. Pearls 7¢



CAR BURNING OIL?

Nothing's as good as a complete mechanical overhaul, but Holt's Piston Seal is the proved, low cost alternative that cuts oil consumption and increases power for up to 10,000 miles. Only \$4.95. Canada \$5.95.

HOLT'S **Piston Seal** Cylinder Compound



METAL REPAIRS?

Real metal-in-a-tube for 1001 shop and household repairs... everything from auto body dents to pipe joints! Use right out of tube, no heat needed. Only \$1. Ask your dealer.

Canada \$1.25. HOLT'S **LOY** All-Purpose Metal Mender



MUFFLER TROUBLE?

No muffler is installed right, no muffler is repaired right, unless the job is done with Holt's "Gun Gum" Muffler Seal. Use straight from the can, no mixing. \$1.69 per can. Canada \$2.00.

HOLT'S **GunGum** MUFFLER SEAL



CARBON CLOGGED ENGINE

Holt's "Supertune" compression primer releases gummed valves and clogged engines. 20-minute tune-up gives a clean, sweet running engine. \$1.69 per can. Canada same.

HOLT'S **SUPERTUNE** Compression Primer



If dealer cannot supply send check to us or write for details.

TREGLOWN CO., INC., FANWOOD 20, N. J.

CANADA: Treglown, Ltd., 1366 Greene Ave., Montreal 6



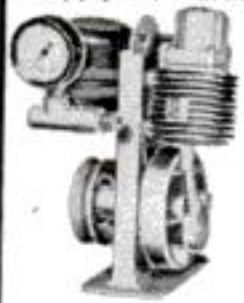
WESTINGHOUSE MOTOR BARGAIN

Regular \$98.00 Value! **\$48.50** F.O.B.

For FARM, Home, Industrial Use

Heavy Duty—Brand New—Guaranteed

Tremendous famous-make BUY! Dynamic 1 HP, single phase Electric Motor is a giant in power to handle all emergencies and hard starting machines such as pumps, compressors, heavy land power tools, feed grinders, etc. Has over 400% starting torque! Heavy overload capacity with automatic overload protection. Full 3/4" shaft—easily reversed. Streamlined, drip proof construction to keep out dust, dirt, etc. Operates on 115-230 volts, 60 cycle, 1725 RPM. Capacitor type. Satisfaction COMPLETELY guaranteed or money back. Limited Supply... order NOW!



Paramount AIR COMPRESSOR

COMPARE Price - Features - Savings!

\$12.95 Post paid

Reg. \$24.95, Ball bearing, piston-type compressor of revolutionary new design. Can't be matched as an all-purpose, low cost unit. New principle operates it on conventional 1/4 HP—BUT delivers MORE air than ordinary 1/4 HP unit. For professional paint spraying, tire inflating, insecticiding and hundreds of other uses in shop, farm, home! Delivers 2 1/4 cu. ft. air per minute. Includes Tank—Air Gauge and Air Regulator for adjusting pressure from 0 to 100 lbs. Order now and SAVE! Satisfaction guaranteed or money back. We pay postage. **FREE CATALOG.**

Roberts Electric Co., 849 W. Grand, Dept. 57, Chicago 22, Ill.

TELEVISION-ELECTRONICS SHOP TRAINING

In only 5 1/2 months we can prepare you to enter this rapidly growing BIG PAY field. No previous experience or special training necessary. We help you find full or part-time jobs while training. Est. 1936.

Write now for

Veteran Approved.

FREE CATALOG

BAILEY TECHNICAL SCHOOLS
1628 S. Grand • St. Louis 4, Mo.

ENORMOUS PROFITS CASTING AT HOME

Write today for NEW FREE CATALOG

Learn to cast thousands of perfect figurines, plaques, book ends, ash trays, etc. Start NOW—NO EXPERIENCE, LITTLE CAPITAL needed. Earn GREAT PROFITS with X.L. RUBBER MOLDS. X.L. Rubber, Pts. \$2.50, Qts. \$4.00 (postage extra); Models and enough rubber for 3 molds... \$1.50 postpaid.

PLASTIC ARTS STUDIO

3403 S. Madison
St. Dept. 3
MUNCIE, IND.



FREE
FACTS
SENT

FREE CRAFT CATALOG



120 PAGES... Craft Supplies, Tools, Designs, Instruction Books from America's Largest, Most Complete Handcraft Stock.

Send for your free copy NOW!

GRIFFIN CRAFT SUPPLIES

5626-B Telegraph Ave. • Oakland 9, Calif.



2 h. p.
(as shown)
only

\$134.

Useful All
Year Around
Complete
Interchangeability

America's Most Usable Garden Tool
**MORE WORK—WITH
LESS EFFORT! ROTO-HOE**

offers you the complete garden tool—it Tills, Cultivates, Composts, gives you portable power 'most anywhere. The powerful dependable Lauson 2 h.p. gasoline motor rotates 15 specially-hardened teeth at high speed, thoroughly mixing and aerating soil up to 6" deep. You will find that gardening can be a pleasure—the hard work is removed.

COST? That's even more surprising—the same low \$134 price established in 1947 for the complete ROTO-HOE basic unit shown above.

YEAR 'ROUND Attachments do many extra jobs: Mow lawn, trim, edge, mulch, blow snow. All are low in cost too. Investigate this real gardening value. See your dealer for a demonstration; write for free illustrated circular to—

ROTO-HOE & SPRAYER CO., Box 18, Newbury, Ohio

GOOD NEWS! THIS BEAUTIFUL VINYL-PLASTIC TILE FLOORING RESISTS GREASE, ACID, ALKALI YET COSTS YOU LESS!

MATICO ARISTOFLEX

The New Low-Cost Tile
Flooring Made of Vinyl—
The Wonder Plastic!

Costs Less To Begin With! Aristoflex—in economical standard gauge — is produced especially by MATICO to meet the needs of homeowners everywhere. It resists dirt, grease, acid and alkali... stays sparkling clean with occasional damp moppings... is quiet and comfortable underfoot... comes in 13 radiant Coronation Colors... lasts for years and years. Best of all, Aristoflex costs less than any other flooring of comparable quality... gives you far more for your money. See Aristoflex at your friendly MATICO dealer — he's listed in your local classified telephone directory!



install
ARISTOFLEX yourself
SAVE STILL MORE!

Yes, you can save \$25, \$30 or more on every room by installing Aristoflex yourself. It's easy, too, with MATICO's tested install-it-yourself method—special tool kit—and illustrated instruction booklet. And you can install Aristoflex in any room from basement to attic because it's rugged vinyl-plastic throughout — there's no felt backing to wear off or deteriorate.

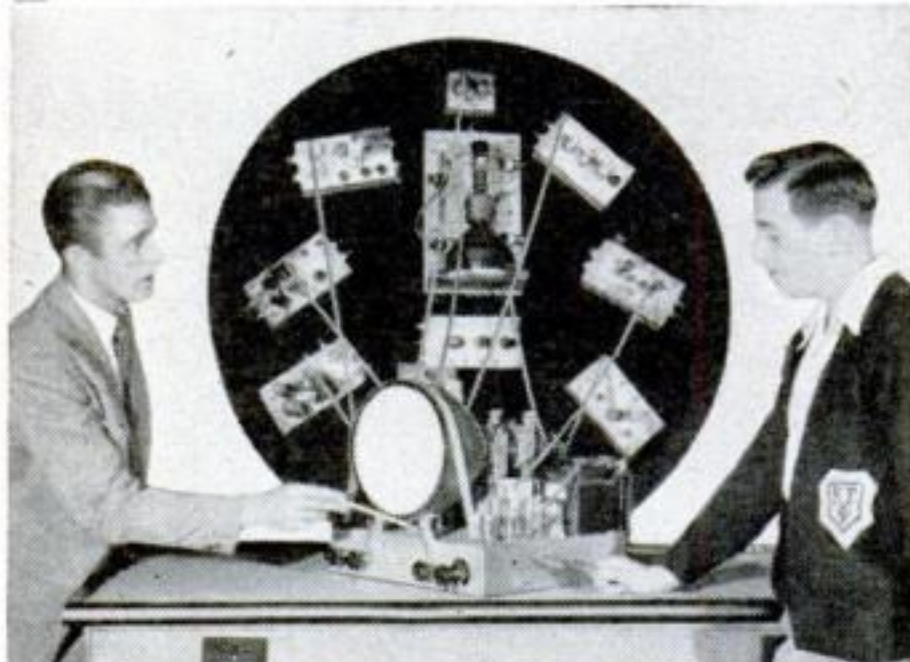


MASTIC TILE CORPORATION OF AMERICA

Member: Vinyl Flooring Institute
Joliet, Ill. • Long Beach, Calif.
Newburgh, N. Y.



BECOME AN ELECTRICAL ENGINEER



Bachelor of Science Degree in 36 months

— Now, prepare for a respected, well-paying and highly interesting job as an Electrical Engineer or Engineering Technician. Major in Electronics or Power, two of America's most rapidly expanding industries. Write for full details.

Choose from these Courses in Electrical Technology

SERVICE PREPARATORY COURSES

Electrical Service - - - - - 6 months
Radio and Television Service - - - - - 12 months

TECHNICIAN COURSES

Electro Technician - - - - - 12 months
Electronics Technician - - - - - 12 months
Radio Technician - - - - - 12 months
Radio and Television Technician - - - - - 18 months

ENGINEERING COURSES

Electrical Engineering-Bachelor of Science Degree
Electronics major - - - - - 36 months
Power major - - - - - 36 months

MECHANICAL TECHNOLOGY COURSES

Also available, service and technician courses 6 to 18 months in Heating, Refrigeration, Welding, Air Conditioning and Mechanics — Mechanical Engineering with a major in Metal Fabrication or Plant Engineering. See opposite page.

Also, 3-month refresher and general preparatory classes.

Terms Open April, July, October, January
Famous for its Concentric Curriculum. Faculty of specialists. Over 50,000 former students. Annual enrolment from 48 states and 23 overseas countries. Non-profit. 50th year. Military, Practical or Academic training evaluated for advanced credit. Courses approved for Veterans.

MILWAUKEE SCHOOL OF ENGINEERING

MILWAUKEE SCHOOL OF ENGINEERING

Dept. PS-353, 1025 N. Milwaukee
Milwaukee 1, Wisconsin

Send Catalog describing Electrical Engineering Course.

I am also interested in: _____ name of course

☐ Check here for a vocational Guidance Book.

Name _____ Age _____

Address _____

City _____ Zone _____ State _____

If veteran, indicate date of discharge _____

Tells How You Can Learn to



Learn At Home

Men, Boys, Hunters, Fishermen, mount and save your lovely wild-game trophies. Be a Taxidermist. Mount Birds, Animals, Heads, Fish, Tan skins. YOU learn easily, quickly in spare time. Have a grand home-museum. The finest and the greatest hobby known, for sportsmen. Fun, real profits.

FREE BOOK

Yes, FREE. Beautiful strange, valuable Book, telling all about Taxidermy. Contains over 100 beautiful game-pictures. And it's yours FREE, if you rush your request. You can mount all kinds of wild-game, and common specimens too. We can positively TEACH YOU. So GRASP this opportunity. RUSH letter or postal for this amazing FREE BOOK. Don't delay. State your AGE. N. W. SCHOOL OF TAXIDERM, 2603 Elwood Bldg., Omaha 2, Neb.

PORTABLE GARAGE

\$6.75

Plastic Vinyl USE IT ANYWHERE

● Folds compactly ● Keeps rain, snow, dust, salt air, sun or sleet away
● Protects your car's finish ● Durable constructed of vinyl plastic ● Springtite elasticized bottom, holds securely in all kinds of weather ● Fits all makes ● Direct from manufacturer ● Enclose check or money order for 6.75, or sent C.O.D. 10-Day Money Back Guarantee.



MARDO SALES CORP.

480 LEXINGTON AVE., Dept. G2080, NEW YORK 17, N. Y.



SEND FOR THIS FREE!

Make money. Know how to break and train horses. Write today for this book FREE, together with special offer of a course in Animal Breeding. If you are interested in Gaiting and Riding the saddle horse, check here () Do it today—now.

BEERY SCHOOL OF HORSEMANSHIP

Dept. 583 Pleasant Hill, Ohio



LEARN LOCKSMITHING

Learn Locksmithing and Keymaking from Experts in Your Spare Time at Home!

Age or physical handicap no disadvantage. Year-round, steady income in this permanent, respected field. Full or part time. Practical, illustrated lessons show you how to make money even while learning! All materials and special tools supplied. Send for FREE BOOKLET.

LOCKSMITHING INSTITUTE, Dept. PS-39
15 Park Ave. Rutherford, N. J.
Lic. by State of N. J. V.A. Approved

EASE COLD MISERY

Take
Tabcin

AT ALL DRUG STORES
45c and 75c SIZES



Made By MILES LABORATORIES, Inc., Elkhart, Indiana

"YOU ARE UNDER ARREST!"



**There's a Thrill
in Bringing a
Crook to Justice
Through Scientific
CRIME
DETECTION**

We have taught thousands of men and women this exciting, profitable, pleasant profession. Let us teach you, too, in your own home. Prepare yourself in your leisure time to fill a responsible, steady, well-paid position in a very short time and at very small cost. What others have done, you too, can do.

**Over 800 of All American
Identification Bureaus**

employ students or graduates of I.A.S. This fascinating work is easy to learn and the training is inexpensive. You, too, can fit yourself to fill a responsible crime detection job with good pay and steady employment. But don't delay—get the details now. Let us show you how easily and completely we can prepare you for this fascinating work, during spare time in your own home. You may pay as you learn. Write today for free Crime Book.

FREE! "THE BLUE BOOK OF CRIME"

It's a thriller. Tells about some of the most interesting crimes ever perpetrated and how they were solved through the very methods taught by I.A.S. Send now—be sure to state age.

INSTITUTE OF APPLIED SCIENCE
Dept. 1363 1920 Sunnyside Ave. Chicago, Illinois

**Be A
FINGER
PRINT
Expert**

sea-net

the official

**FROGMAN
EQUIPMENT**

For pool, lake or ocean,
the finest in underwater
swimming equipment. High
speed flippers, masks and
goggles in attractive marine
blue pure gum rubber.
Send for complete free
catalog of underwater
equipment today!

Face Mask
\$3.95*

Froggles
\$1.25*

Super
Frog Feet
\$7.95*

* Plus tax

Official Equipment

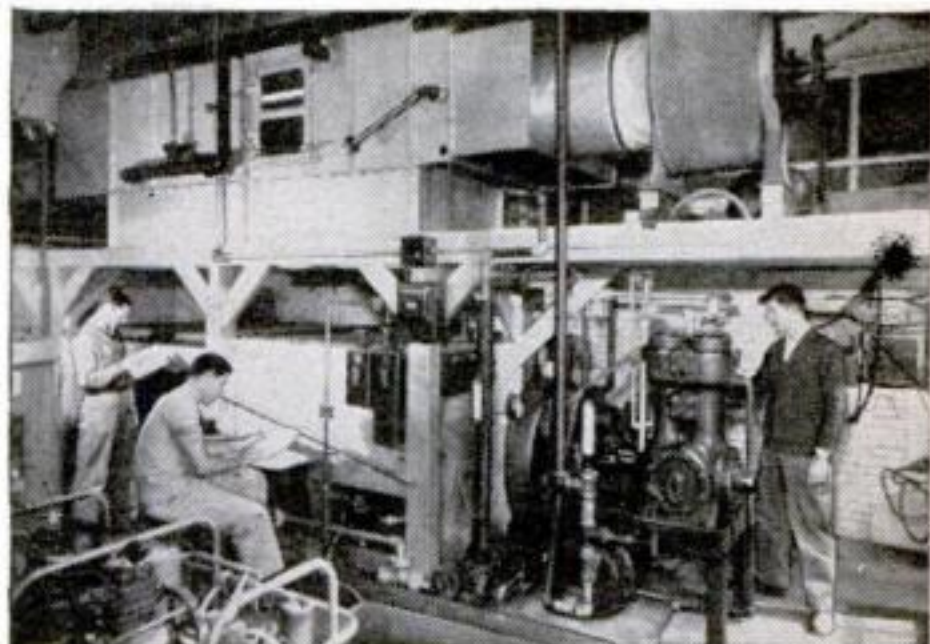
**NATIONAL FROGMAN
CLUB**

At your dealer or
order direct.

sea net Mfg. Co., Dept. PS3, 1428 Maple Ave., Los Angeles 15, Calif.

BECOME A

Mechanical Engineer



B. S. Degree in 36 months



Mechanical Engineers hold respected, well-paying, and highly interesting jobs in many fields of industry. You can prepare now for a secure future as an engineer or engineering technician. Write now for full details. Approved for veterans.

Check from these Courses

**ENGINEERING 36 months,
Bachelor of Science Degree**

- Mechanical Engineering with a major in Design, Metal Fabrication or Plant Engineering.
- Electrical Engineering with a major in Electronics or Power.

SERVICE 6 to 12 months

- Electricity • Heating
- Refrigeration • Welding

TECHNICIAN 12 to 18 months

- Radio and Television
- Electronics
- Electrical Power
- Mechanical Technician
- Air Conditioning
- Welding

General preparatory course
— 3 months.

TERMS OPEN APRIL, JULY, OCTOBER, JANUARY

Faculty of specialists. Over 50,000 former students. Annual enrollment from 48 states and 23 overseas countries. *Non-profit. 50th year.* Military, Practical or Academic training evaluated for advanced credit. Write for details today.

MILWAUKEE SCHOOL OF ENGINEERING

MILWAUKEE SCHOOL OF ENGINEERING
Dept. PS-353, 1025 N. Milwaukee
Milwaukee 1, Wisconsin

Send Catalog describing Mechanical Engineering course.

I am also interested in: _____
name of course

Name _____ Age _____

Address _____

City _____ Zone _____ State _____

If veteran, indicate date of discharge _____

MODERN INSULATION

MAGIC

YOU'LL BE
AMAZED
WITH

REYNOLDS
ALUMINUM
REFLECTIVE
INSULATION

Take it home



500 sq. ft. under his arms

Put it up



Easy to tack or staple

Work a "miracle" in your walls or attic with this aluminum foil bonded to tough kraft paper. Costs only about \$40 to put up over ceiling of average 6-room house. Reflects up to 95% of radiant heat. Summer heat bounces off; interiors often 15° cooler. Winter heat reflects back inside. Clean, odorless, pliable. Tack or staple over ceilings or under rafters, between wall studs, under ground floors. Perfect vapor barrier. Fire-retardant. Two types: foil on both sides for double air space; one side, to face single air space. Rolls 250 sq. ft., 25", 33", 36" wide.

Aluminum Sheet for Rust-proof Flashing, Termite Shielding, General Shop Work!

New all-purpose carton of ten 18" x 48" sheets, .019" thickness. Best for flashing, also great idea for over sink or stove, door kicks, etc., etc.



Also makes wonderful reflectors for radiators, photo lights, etc. Mail coupon for *free samples*.

Aluminum gutters—cost much less than other rust-proof materials. Non-staining. Put them up yourself—slip joints, no soldering.

Aluminum nails—rustproof, never stain.

See your Building Supplies or Hardware Dealer

REYNOLDS *Lifetime* ALUMINUM BUILDING PRODUCTS

MAIL THIS COUPON NOW!

Reynolds Metals Company
Building Products Division
2032 So. Ninth St., Louisville 1, Ky.

Send full information and **FREE SAMPLES** of Reflective Insulation. Also full details about

☐ Gutters & Downspouts; ☐ Nails; ☐ Flashing

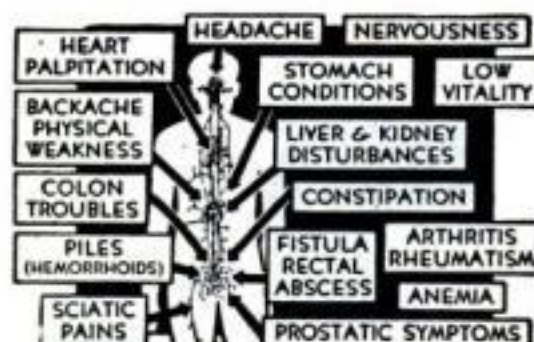
Name

Address

City State

Fistula May Often Result From Piles

FREE BOOK — Gives Facts On Associated Ailments



A new, illustrated 40-page book on Fistula, Rectal Abscess, Piles and other rectal and colon disorders is now **FREE** to all sufferers. Write today—a card will do. Thornton & Minor Hospital, Suite 349, 911 E. Linwood, Kansas City 9, Mo.

LEARN FASCINATING

Leathercraft



Make your own bags, belts, wallets, etc. Learn fascinating, profitable leathercraft in spare time. Send 25c for valuable Catalog, has over 200 photographs. (refunded first purchase).

BURTONS LEATHERCRAFT

Dept. PS-3, 1727 Glendale Boulevard, Los Angeles 26, Calif.

HYPNOTISM

Learn to apply this tremendous **POWER**. Develop will-power, self-confidence, self-control. **ANYONE** can master this exciting profitable profession in short time by training at home, with **GUARANTEED RESULTS**. **DON'T DELAY** . . . Write to America's oldest Hypnotic school for free information now—today!

INSTITUTE OF APPLIED HYPNOLOGY

Dept. 23, 120 Central Park So., N. Y. 19, N. Y.

CASH-IN-ON-YOUR-IDEAS



Reputable manufacturers, nation-wide look to us for your gadgets, patented or not. Get step by step helpful instructions before you go to the expense of patents. "The Inventor's Guide" tells how to develop, protect, profit from your inventions. Send only \$1.00 for your book. Includes list of needed products, "Record of Invention" form. Act to-day!

INVENTORS CREATIVE SERVICE
Dept. PS, 354 South Spring St., L. A. 13, Calif.



MECHANICS BROWLITE

Browlite lights up the darkest corners and leaves both hands free to work, no interference from swinging lights or other attachments. Browlite directs the light wherever you look. Get at least two—one for the car, one for the house. You'll wonder how you ever got along without it. Comes complete with batteries and bulb. Send no money (C.O.D. You Pay Postage and Handling or send \$2.98 with order and we pay all charges.) Send 10c for novelty catalog.

ONLY
\$2.98

NOVELTY MART, 59 East 8th St., New York 3, N. Y., Dept. PS 3

Get into this
Sensational New
**"ONE MAN
BUSINESS"**
..pays \$10 to \$20 profit
for each dollar of cost.

PLASTIC LAMINATING

Make \$20 to \$30 a day by our
MAGIC MAIL PLAN—get orders
and cash from your mailman!

Here's the newest and most fascinating of all home-operated businesses. For the first time, a simplified machine brings the fabulous profits of Plastic Sealing and Plastic Laminating within the reach of the small operator. Can be operated in a corner of the kitchen, basement, or garage.

And any man or woman, regardless of age, education or experience can learn this interesting work IN A FEW MINUTES OF READING—can turn out professional jobs after one hour's practice.

TWO EXCITING SOURCES OF PROFITS!

No house-to-house canvassing. No face-to-face selling. We not only supply the equipment you need for the work, but also show you exactly how to bring in big daily profits from two big-demand fields.

A FORTUNE IN PLASTIC SEALING

Millions of people want to protect valuable cards, photographs, documents and papers against wear, soil, and damage. By our MAGIC MAIL Plan you get this business through the mails. Open envelopes and take out money and orders. Details of this plan will be sent free. Just mail coupon.

BIG PROFITS IN LAMINATING

A creative, artistic business. Gift shops sell your entire output. Just a few of thousands of giftwares illustrated on this page. Beautiful colors.

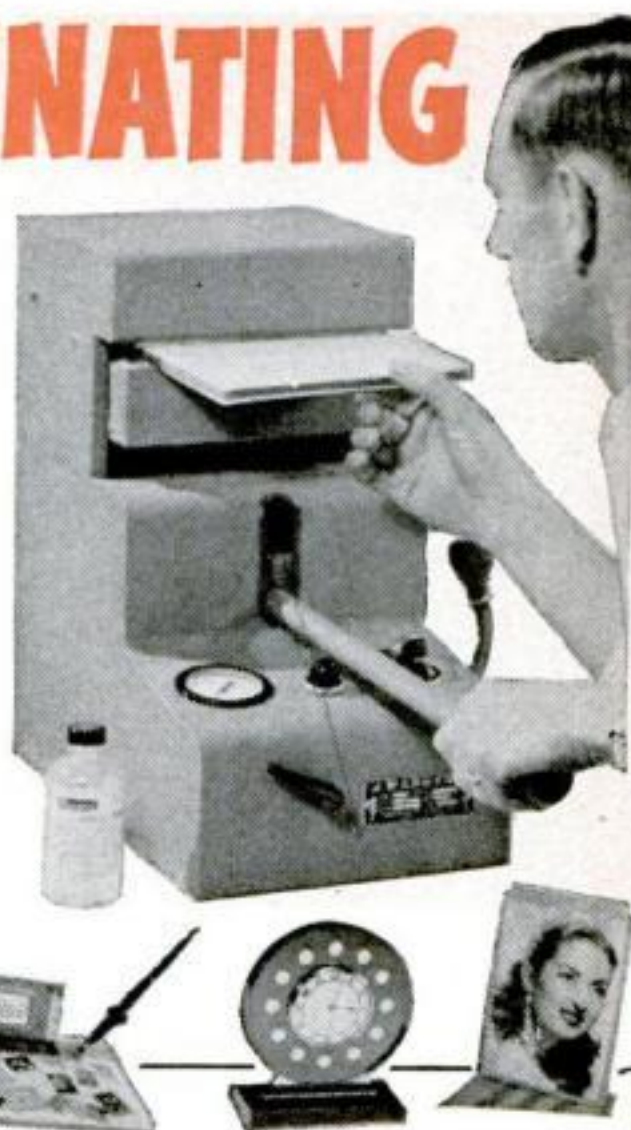
RUSH COUPON Never before has such an opportunity been offered the small, home-operator—an opportunity to gain complete personal independence in a big money business of your own. Don't lose a minute. Get the facts at once. All information, fully illustrated with pictures, is free. Send the coupon—or send your name and address on a postcard. There is no charge now, or at any other time. Send for the information on this exciting opportunity today

WARNER ELECTRIC COMPANY
1512 JARVIS AVE., DEPT. L-93, CHICAGO 26, ILLINOIS

Endless designs. Exclusive "one of a kind" appeal brings sales at ten to twenty times the cost of materials. Beautiful illustrations and instructions for making these artistic novelties sent free. Mail coupon now.

FREE!

The opportunities in Plastic Laminating are so big that space here does not permit even skimming the surface. You must read the details. See for yourself how easy it is to do the work—how you can put plastic sheets into your machine and take out a fortune—how money and orders come to you in the mail—how gift shops clamor to get more and more of your creations—how you can achieve independence without any study or experience.



Thousands of Beautiful Art Creations

Made by Laminating as explained in our Free Information. Send coupon for list and pictures of **Costume Jewelry—Jewels—Cigarette Boxes—Cuff Links—Novelty Buttons—Trays—Candlesticks—Coasters—Clock Cases—Lamp Bases—Picture Frames—Book Ends—Charms—Advertising Signs—Name Plates—Belt Buckles, Etc.**

\$5—\$10—\$20 BILLS
COME TO YOU BY MAIL

By our MAGIC MAIL Plan you sit at home send out mail, and get back money and orders. Additional profits in supplying local people with lifetime protection against wear, soiling, and moisture damage for: **Snapshots—Identification Cards—Discharge Papers—Drivers' Licenses—Social Security Cards—Credit Cards—Birth and Wedding Announcements and Certificates—Passes—All Important Documents.**

**WARNER ELECTRIC CO., Dept. L-93,
1512 Jarvis Ave., Chicago 26, Illinois**

Please mail, postage prepaid, complete information with illustrations showing the things I can make and the money possibilities in Plastic Laminating. All this is free. No salesman is to call. Also, tell me how I get orders and money from my Postman by the Magic Mail Plan.

NAME.....

ADDRESS.....

CITY.....ZONE.....STATE.....

TRAVEL FOR "UNCLE SAM"!

AS HIGH AS \$3,795.00 FIRST YEAR

RAILWAY POSTAL CLERKS



Many Government Jobs.
City and Rural Carriers—Postoffice Clerks—Meat Inspectors—Accountants—Stenographers—Customs Inspectors—etc. Prepare now for next Examinations.

Veterans Get Special Preference

**FRANKLIN INSTITUTE,
Dept. W-80, Rochester 4, N. Y.**

(Not Government Controlled)

Sirs: Rush to me, without charge, copy of 40-page book, "How to Get a U. S. Government Job," list of positions, and full particulars telling how to qualify for them.

NAME.....

ADDRESS.....AGE?.....

MARCH 1953 51

BREED Rare TROPICAL FISH EARN BIG MONEY IN SPARE TIME

IT'S EASY!

Once you learn the fascinating secrets you can breed:
"Tetras" that LIGHT UP like Neon Signs.
"Gourami" that are 12 DIFFERENT COLORS, "Fighting Fish" THAT FIGHT UNTIL DEATH, "Zebra Fish,"—hundreds of Beautiful Rare varieties. Fabulous Profits possible! Mail Order Plan



KISSING GOURAMI FISH IN HOME AQUARIUM

AMAZING NEW HOME-BUSINESS! WONDERFUL OPPORTUNITY! FASCINATING ADVENTURE once you know the "Secrets" of breeding and selling rare Tropical Fish. Some sell for \$75 pair and more! NO BIG INVESTMENT—NO EXPERIENCE NECESSARY! It's fun to breed expensive fish in your home, basement, or garage. Takes only minutes per day. Earn extra money in leisure time once you know how. We supply everything you need.

GET INTO PARTNERSHIP WITH NATURE. Let Nature Multiply your profits for you. Some Fish lay 300-600 eggs at one time.

HELP FILL HUGE DEMANDS—from Stores, Hotels, Interior Decorators, Schools, Restaurants, Offices, Theatres, Doctors, etc. etc. Also over 20,000,000 Tropical Fish fanciers in the U. S. to sell to! No big Companies to compete with. Amazing opportunities for Home Breeders or Full-Time Breeders.

YOUR "CHANCE OF A LIFETIME" OPPORTUNITY. If you wish to combine pennies with spare time—to make dollars in profit.

HOME-BUSINESS PLAN

Complete Illustrated Home—business plan, colorful Breeding Brochure, Reprints, etc., etc.

WRITE: TROPICAL FISH BREEDERS OF AMERICA, Dept. C-7, Los Angeles 15, Calif.

Rush everything free to:

Name _____

Address _____

City _____

State _____

FREE!

STORM DOOR IN WINTER

Beauty and PROTECTION all year 'round

SCREEN DOOR IN SUMMER

Alumatic ROYAL ALUMINUM COMBINATION DOOR

Everlasting charm and economy for old and new homes—now at surprisingly LOW cost! See the exciting new ROYAL at your dealer's now—he'll make it easy for you to own the door you've always wanted!

Ask to see ALUMATIC or ARALUM aluminum combination windows, too.

Products of

Alumatic CORPORATION OF AMERICA
Dept. C63C, 2081 S. 56th St., Milwaukee 14, Wis.
In Canada: ALUMINUM BLDG. PRODUCTS CO., LTD.
362 Chilver Road Windsor, Ontario



LOW OVERHEAD—LARGE VOLUME SALES & SMALL PROFITS
BRING YOU THESE "LOWEST PRICES"

19 YEARS AT THIS ADDRESS
WHAT GOOD IS A TIRE WITHOUT A TUBE?

TUBE GIVEN WITH EVERY TIRE AT NO EXTRA COST



Why Pay More!

SPRING SPECIALS—AT LOW PRICES
SAVE TIME—SAVE MONEY—SEND THIS AD

GOOD USED TIRES—NOT RECAPS

BE WISE—A TRIAL OF ONE

TIRE WILL CONVINCE YOU

We Give What We Advertise

20 MONTHS WRITTEN GUARANTEE



600x16	\$3.95	820x15	\$5.25	600x20	\$6.85	32x6 (8)	\$8.45
650x16	4.35	700x15	4.15	650x20	7.45	32x6 (10)	9.75
700x16	4.95	670x15	4.35	700x20	8.35	900x20	13.05
650x15	3.95	710x15	4.55	750x20	8.35	1000x20	13.55
760x15	4.85	550x17	4.25	825x20	13.85	1100x20	13.85

EXTRA SPECIAL 30 MONTH WRITTEN GUARANTEE							
600x16	\$5.05	475x19	\$5.05	700x15 (6)	\$8.75	700x20	\$12.35
600x16 (6)	5.05	640x15	4.95	750x16 (6)	9.45	750x20	12.55
650x16	5.75	670x15	5.05	700x17	9.85	750x20 (8)	12.55
650x16 (6)	6.75	710x15	5.65	750x17	10.65	825x20	18.15
700x16	6.45	760x15	5.85	750x15	10.55	900x20	17.15
750x16	6.95	800x15	6.75	825x15	11.95	1000x20	18.35
525x18	4.85	820x15	6.65	600x20	8.65	1100x20	18.35
550x17	4.45	670x16	6.15	650x20	10.65	1000x22	17.35
650x15	5.05	760x16	6.55	32x6 (8)	10.35	1100x22	17.35
700x15	5.75	700x16 (6)	7.75	32x6 (10)	11.35	1200x20	20.55
White Walls \$1.00 Extra				Military treads 750-20 16.15			

Thousands of tires shipped all over U. S. A. All tires shipped F.O.B. Phila. Send Check or M.O. with this ad. Dept. 5.

STANDARD 834 N. Broad St., Philadelphia 30, Pa.



MASTER MIND!

Learn Short-Cut Mathematics

Juggle figures, do baffling number tricks. Make people gasp at your marvelous lightning-quick mind. Multiply 4 figures by 4 figures without using old-fashioned multiplication! Big cloth-bound volume; fully illustrated course.

Sharpen up Your Brain Power

Includes worked-out problems, answers, etc. Sensational bargain, only \$2.95, postpaid or COD plus postage. Satisfaction guaranteed or refund. Order this amazing "Short-Cut Mathematics" today!

NELSON-HALL CO., 210 S. Clinton St.
Dept. 4CX-1 Chicago 6, Ill.

\$2.95 Complete

TASOPE PHOTO-ENGRAVING PLANTS



MATERIAL COST OF THIS CUT 1/4c
SELLING PRICE \$1.00 AND UP

Establish your own profitable PHOTO-ENGRAVING business. Make cuts for newspapers, printers, and advertisers. Make etched name plates, plaques etc. Instructions furnished, no experience necessary. Sold direct from factory since 1931. First five hundred cuts sold locally or by mail will pay for plant and pay you well for your time. Write for FREE catalog.

TASOPE DEPT. PS-3, AURORA, MO.

ITALIAN ACCORDIONS



All types, all models, Very best. Hand Made. Fully guaranteed. Buy direct from Factory representative at lowest wholesale prices, and Save Money. Also Button Accordions, Chromatic Accordions and Concertinas. We take any instruments in trade. Send name and Address for FREE catalog.

ITALIAN ACCORDION MFG. CO.

7600 Cottage Grove Ave., Dept. PS-3, Chicago 19

TECHNICIAN TELLS HOW TO GET AHEAD

Decide you'll make good, then do something about it. "I took the I. C. S. Course in Mechanical Engineering. Shortly, I was promoted to Plant Layout Technician at double my starting salary." Do something about your future. Mail the coupon. Famous I. C. S. will send you two free books!



Frank Bachtik, Jr.
Ford Motor Company

INTERNATIONAL CORRESPONDENCE SCHOOLS

Dept. 7639-N, Scranton 9, Pa.

Please send free success book plus catalog on course checked:

- | | | |
|--|--|---|
| <input type="checkbox"/> Aeronautics | <input type="checkbox"/> High School | <input type="checkbox"/> Accounting |
| <input type="checkbox"/> Automobile | <input type="checkbox"/> Commercial Art | <input type="checkbox"/> Mechanical Engineering |
| <input type="checkbox"/> Drafting | <input type="checkbox"/> Business Administration | <input type="checkbox"/> Electrical Engineering |
| <input type="checkbox"/> Practical Electrician | <input type="checkbox"/> Architecture | <input type="checkbox"/> Radio-TV-Electronics |
| <input type="checkbox"/> Other subject _____ | | |

Name _____

Age _____

Address _____

**MILLIONS OF
APPLIANCES
NEED REPAIR!**

EARN BIG MONEY.. WORK PART OR FULL TIME IN ELECTRIC APPLIANCE REPAIRING!

**ELECTRIC
REFRIGERATORS**

**WASHING
MACHINES**

**VACUUM
CLEANERS**

**ELECTRIC
RANGES**

MOTORS

**SEWING
MACHINES**

TOASTERS

WAFFLE IRONS

MANGLES

HEATING PADS

FREEZERS

ELECTRIC FANS

ELECTRIC IRONS

LAMPS

ETC., ETC.



**ELECTRONIC KIT
TROUBLE DETECTOR**
(Checks shorts, wattage,
continuity, etc.)
is sent to all students

**MAIL COUPON for
FREE
BOOK**

Learn this fascinating big money paying profession at home in your spare time. Learn by doing, by working with your hands building, testing, repairing electrical appliances of all kinds. Electrical appliance repairmen are needed everywhere—wherever electricity is used. You need no special previous training or experience. Age is no handicap. CHRISTY has trained over 33,000 men in all parts of the world. Men who today command big wages or own profitable businesses of their own.

PAY LATER FROM EARNINGS WHILE LEARNING

CHRISTY shows you how to make money while still learning, what to charge, how to set up your own shop, how to build power tools from spare parts, etc. It will pay you to write today.

**CHRISTY TRADES SCHOOL, Dept. D-2501
4432 N. Kedzie Ave., Chicago 25, Ill.**

Send me your FREE book on Electrical Appliance Repairing and special form for "paying later from earnings made while learning."

NAME.....AGE.....

ADDRESS.....

CITY.....STATE.....

MEAT CUTTING OFFERS YOU SUCCESS And SECURITY

In The Best Established Business In The World • PEOPLE MUST EAT!

TRAIN QUICKLY in 8 short weeks for a job with a bright and secure future in the vital meat business. Trained meat men needed. Good pay, full-time jobs, year-round income, no lay-offs—**HAVE A PROFITABLE MARKET OF YOUR OWN!**

LEARN BY DOING

Get your training under actual meat market conditions in our big modern cutting and processing rooms and retail meat market. Expert instructors show you how—then you do each job yourself. Nearly a million dollars worth of meat is cut, processed, displayed and merchandised by National students yearly!

PAY AFTER GRADUATION

Come to National for complete 8 weeks course and pay your tuition in easy installments after you graduate. **G. I. APPROVED.** Diploma awarded. Free employment help. Thousands of successful graduates. **OUR 28th YEAR!**

FREE CATALOG—MAIL COUPON

Send now for big new illustrated National School catalog. See students in training. Read what graduates are doing and earning. See meat you cut and equipment you work with. No obligation. No salesman will call. Send coupon in envelope or paste on postal card. Get all the facts **NOW!**

NATIONAL SCHOOL OF MEAT CUTTING, INC.
Dept. 51-P Toledo 4, Ohio



NATIONAL SCHOOL OF MEAT CUTTING, INC., Dept. 51-P, Toledo 4, Ohio

Send me FREE 52-page school catalog on **LEARN-BY-DOING** training in **PROFITABLE MEAT CUTTING, SUCCESSFUL MEAT MERCHANDISING** and **SELF-SERVICE MEATS** at Toledo. No obligation. No salesman will call.
(Approved for Training Korean Veterans)

Name.....Age.....

Address.....

City.....Zone.....State.....

FREE BOOK AND ACTUAL SAMPLE

Screen Print, Dept. 13,
1010 So. Los Angeles St.
Los Angeles 15, California
Dear Mr. Nowak: Please rush me FREE BOOK,
ACTUAL SAMPLES, and your amazing new PRINTING PLAN

Name _____
Address _____
City _____ State _____



C. J. NOWAK
General Manager
AT HOME
SPARE
TIME

IT'S AMAZING! I'll show you
how to make up to \$12.50 per hour

PRINTING WITHOUT A PRINTING PRESS

AMAZING NEW COLOR PRINTING METHOD
A fascinating new miracle-way to print—a secret method that lets you print colorful signs, posters, banners, drapes, wallpaper, flags, glass, fabrics—ANYTHING without an expensive printing press or costly equipment. This new process is revolutionizing the entire printing industry—it's one of America's fastest-growing businesses—it's your "chance of a lifetime" to make Big Money Now! Be the FIRST in your area to profit. The secret can be yours—just mail the coupon above today!

EASY TO LEARN! NO EXPERIENCE NECESSARY! Simple fascinating method! No artistic ability needed. It's possible for anyone (young or old) to make up to \$50 PER WEEK printing in SPARE TIME alone—AT HOME!

START YOUR OWN BUSINESS—BE YOUR OWN BOSS Wouldn't you be happy if you could take only one hour of your time and \$1.00 worth of materials—and sell your printing for \$15 or more. It's that easy! It's amazing! Your home can be your office—No selling because there's a huge demand everywhere. **GOVERNMENT CONTRACTS AVAILABLE TO BID.** Biggest opportunity in America—costs you nothing to receive all CONFIDENTIAL FACTS—Mail coupon today!

SCREEN-PRINT

1010 S. Los Angeles St., Los Angeles 15, California



Print paper of all kinds

PRINT BANNERS

PRINT FABRICS

PRINT INSTRUMENTS

PRINT SIGNS

FOR SALE

YOU
CAN PRINT
ANYTHING
WITH



Embed Real Flowers In New MAGIC PLASTIC

Create lovely things like the pansy coaster shown—made by embedding real pansies in Castolite liquid casting plastic. Comes crystal clear or may be colored. Also make jewelry, book ends, candle holders, picture frames, figurines. Embed real flowers, butterflies, coins, photos, for plaques, paper weights, tiles, other objects. Use only home tools.

25¢



• New Book SHOWS HOW

Big, new book explains how to get started. Have fun—make extra money! Send 25¢ today for our "Castolite Creations" Manual and our proved "Home Success Plan."

The Castolite Co. Dept. C-2 Woodstock, Ill.

Saves Digging, Pumping, Moving!

OUTDOOR TOILETS CESS POOLS • SEPTIC TANKS Cleaned—Deodorized

Banish offensive odor of disposal units with amazing new product! Just mix dry powder with water and pour into outside toilet, cess-pool or septic tank. That's all! Absolutely safe—non-toxic, no poisons. Will not harm livestock, poultry, trees, grass. Works like magic to reduce mass, to eliminate odors, to unclog walls and pipes... to facilitate free and easy drainage. One treatment lasts months and months.



FREE SAMPLE

Just send your name and address on a postcard for actual "convince yourself" sample and complete details. Discover this new, easy way to clean, deodorize and sanitize disposal units...at amazing low cost. Learn how to avoid excessive, costly digging, pumping and moving. Write today for Free Sample & full details.

BURSON LABORATORIES, 951 Willard Ct., Dept. 196, Chicago 22, Ill.

Operate Your Own Business!

Clean and Mothproof Rugs and Upholstery ...Even if NOW Employed



You can profitably operate in spare time while building a full time business with servicemen.

- Nationally Advertised Services
- No Experience Needed
- Repeat Orders
- Big Profits

If you are dependable, honest and willing to work, send today for details on how to become financially independent in a profitable, growing business of your own. Choose an open territory anywhere in United States, Canada or foreign countries. Services rendered in homes, offices, clubs or public buildings.

DURACLEAN (illustrated above) cleans by absorption. No scrubbing! No soaking or shrinkage. This modern safe cleaning process uses mild solvents. Dirt, grease and many unsightly spots vanish as if by magic. Wool fibers come to life... matted pile rises... colors revive. Upholstery and floor coverings last longer.

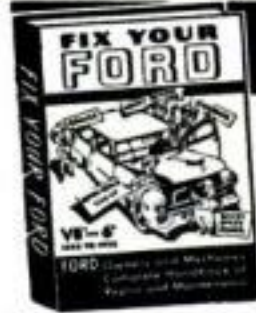
DURAPROOF (not illustrated) is another year 'round service. Not only kills moths and carpet beetles but makes materials resistant to both. Protects furnishings, clothing and auto interiors. **DURAPROOF** is the only moth proof service backed by an International Money Back 4 YEAR WARRANTY.

Leading furniture and department stores recommend **DURACLEAN** Dealer's service. Almost every building in your territory houses a potential customer needing one or both of these services. Nationally Advertised in magazines such as Life, McCall's, House Beautiful, House & Garden, etc. Even auto dealers buy your service to revive upholstery in used cars.

Easy to learn. No shop needed. Operate from your own home. Alert dealers can average \$5 hourly gross profits on service they render, and \$3 on EACH of their servicemen at National Price Guide charges. Start full or part time. Territories are limited! Write immediately for FREE Booklet explaining details. Easy terms.

Duraclean Co.

3-183 Duraclean Bldg.
DEERFIELD, ILL



FIX YOUR FORD and SAVE

Brand new handbook for owners and mechanics by Bill Toboldt, Editor, Motor Service Magazine. Covers all Ford V-8's and 6's, 1932 to 1952. Brings you the know-how of hundreds of Nation's top Ford service men. Includes step-by-step service procedure, shortcuts and kinks to speed repair, tune-up specifications, how to increase gas and tire mileage, make car run better, last longer, worth more. Hot rods and speed-ups too. Simplified. Packed with pictures. If you drive a Ford or are interested in Fords you need this book. Clip this ad and mail with \$2.50. Money back guarantee.

Goodheart-Willcox Co., Dept. 197, 1921 S. Michigan, Chicago 5

BOYS! MAKE YOUR OWN RADIO

Make your own simple, tubeless, batteryless Crystal Radio. SEND 25¢ for a GENUINE MELOMITE CRYSTAL with complete illustrated instructions for making your own set. Crystal sent postpaid with instructions and our own publication, "THE MAGIC CRYSTAL" which is full of news, diagrams, questions and answers of interest.

SEND 25¢ FOR YOUR CRYSTAL TODAY!

ALVA ALLEN RADIO Dept. PS-3 Clinton, Mo.

WARN HUB CAP ENDS FRONT WHEEL DRAG ON 4-WHEEL DRIVE JEEPS

MAKES 2 JEEPS OUT OF 1! Cut repair bills! Double the usefulness of your Jeep! Enjoy snappier performance! Install Warn Hub Caps on your 4-wheel drive Willys Jeep, Station Wagon or pick-up; or Dodge Army 3/4 ton or Power Wagon—get more power, speed, pick up. Warn caps eliminate heavy drag of complex front end drive assembly, front wheels coast out of gear on roller bearings—4-wheel handles, performs like 2-wheel. Warn Caps increase gas mileage up to six miles per gallon, stop shimmy even though gears are worn, add thousands of miles to tire life. No interference with low power range or 8 speeds. Easy to install or remove in 10 minutes. No special tools required. Thousands of satisfied owners. Polished aluminum, last for years. Guaranteed. Rush check, M.O., C.O.D. or write for literature.

Willys \$20.00
Dodge \$23.00
Pair, Prepaid
U.S., Canada

WARN MFG. CO., Riverton Box 6064 - B2, Seattle 88, Wash.

**DRILL
SAW**

**REAM
CUT**



DRILL, SAW, REAM . . . metal, pipe, wood, plastic, Transite, etc. Use with any electric drill, slow drill press, lathe or milling machine. Drills own starting hole—upper part of bit is used to cut, saw or ream circles, ovals, squares or scrolls. Easy to operate. Ideal for carpenters, mechanics, electricians, plumbers, hobbyists, many others. Abrasive resistant, high speed steel. Flutes ground from solid. Will withstand severe continuous use without breaking. Resharp-ened at no charge. Takes place of up to \$50 in tools. 1/4" diameter, 2" cutting sections, total length 3 1/2". Available in three types—All Purpose, Wood, Heavy Metal. Specify type needed. Set of 3, \$11.50. Details on request. Shipped same day. Money-back guarantee. Dealer inquiries invited. **ORDER NOW! SEND CASH, CHECK OR MONEY ORDER.**

Manufactured and distributed by
INTERNATIONAL TWIST DRILL CORP.
618 Wyandotte, Rm. 691, Kansas City 5, Mo.

**only
\$3.95
POST PAID**

**HANDSOME
SHOES FOR
MEN IN
LARGE
SIZES
ONLY!**

Send for **FREE
CATALOG** and
news of
**FREE
OFFER!**



**SIZES WIDTHS
NOW! 10-16 AAA-EEE!**

King-Size shoes cater only to men with large feet. Fine shoes in many distinctive styles. Perfect fit, long wear at low cost, delivered to your door! **SATISFACTION GUARANTEED!**

KING-SIZE, Inc. 175 BROCKTON, MASS.

**ENGINEERING DEGREE IN
27 MONTHS**

Big Demand for Graduates

AERONAUTICAL, CHEMICAL, CIVIL, ELECTRICAL, MECHANICAL and RADIO ENGINEERING (inc. TV and Electronics).

Hundreds of young men are earning **B.S. ENGINEERING DEGREES** annually in this recognized institution—year around operation. New terms start quarterly. Many students earn a major part of their college expenses in this large industrial center.

Low tuition. Competent instruction. Thorough, intense, practical program. Modern, well-equipped laboratories including new physics laboratory and modern wind tunnel. Individualized instruction emphasized.

Gov't approved for G.I.'s. Engineering preparatory courses. Students from 48 states and 21 foreign countries. Enter March, June, September, December. Send coupon for free catalog and full information. Enroll now.

SEND COUPON TODAY

INDIANA TECHNICAL COLLEGE

633 E. Washington Boulevard
Fort Wayne 2, Indiana

Please send me free information on B. S. Engineering degree in 27 months as checked.

☐ Aeronautical, ☐ Chemical, ☐ Civil,
☐ Electrical, ☐ Mechanical, ☐ Radio-Television.

Name.....

Address.....

"WHAT A Wonderful Easy Way to Learn Music!"



START PLAYING RIGHT AWAY—

Even If You Don't Know a Single Note Now!

FREE BOOK Tells All About This "Easy As A-B-C" Way

Imagine learning to play music **RIGHT AWAY!** Yes—piano, guitar, accordion, or any other instrument. **WITHOUT** stirring from your home! **WITHOUT** the bother and expense of having a private teacher! **WITHOUT** spending months doing boring scales and exercises! And all at a cost of only a few cents per lesson—and a few spare minutes per day!

THEY ARE PLAYING —SO CAN YOU!

Samuel Moses,
Mt. Vernon,
Tenn.: "After
a short time I
could sit down
and play pieces
in a hymn book.
Now entertain
at parties—play
dances."



Lawrence Welk, famous
band leader:
"Got my start
in music with
your Course.
How easy it is
to learn to read
notes and play an instrument
this 'teach-your-
self' way."

Mrs. Dallas B. Kerk, Lodge-
pole, Nebr.:
"Never dreamed
I would ever
play. Didn't
know a note. To-
day I play de-
lightful pieces,
after only 2
months."



Takes "Mystery" Out of Music

No wonder over 900,000 people have taken up this famous home-learning method! Takes the "mystery" out of music. Explains everything step-by-step—so clearly even a child "catches on" at once. **EVEN IF YOU DON'T KNOW A NOTE NOW**—you'll soon be playing so well that family and friends will be amazed. No months of "preparation." Start right in on simple pieces—**REAL music—by NOTE.**

FREE BOOK

Why keep missing out on the fun of music . . . the good times, interesting new friends? Mail coupon for **FREE 36-page book** and a **Free Copy** of our simple "print-and-picture" Lesson-Sample. No obligation; no salesman will call on you. **U. S. School of Music, Studio C153, Port Washington, N. Y.** (Special Reduced Prices on instruments to our students.) We are now in our 55th successful year!

**U. S. School of Music, Studio C153,
Port Washington, N. Y.**

Send me **FREE BOOK** and **FREE Lesson-Sample**. No obligation—and no salesman is to call upon me. I'm interested in playing

(name instrument).....

☐ I do ☐ I do NOT—have instrument now.

Name.....
(please print)

Address.....

City.....State.....
(Please state Zone No. if any)



**FREE
BOOK**

ELECTRICAL WIRING JOBS

Official
CODE RULES
made clear by
PICTURES!

2 GIANT now made Easier!
Volumes Surer! SAFER!
3168
Pictures!

Newest idea in ages! Official National Electrical Code rules made crystal-clear by PICTURES! Books contain thousands of pictures explaining every Code rule, parts of rules, exceptions, etc. Based on latest Code . . . shows how to do a right job every time. Saves you time, money, inspection headaches. Pictures are big and clear . . . on 8½x11 page size . . . over 1600 pages. Covers things like wiring design and protection, wiring methods, hazardous locations, etc.

ELECTRICAL CODE DIAGRAMS

A few minutes study a day makes you a real Code expert . . . helps you on the job every day.

- Speeds your electrical planning and installation
- Saves costly errors, expensive violations
- Numbered exactly like Code for quick reference



FREE TRIAL!
EASY TERMS!

McGRAW-HILL BOOK CO., Dept. PS-3
327 West 41st St., New York 36, N.Y.

(This offer applies
to U. S. only)

Send for 10 days' FREE trial Segall's ELECTRICAL CODE DIAGRAMS, 2 vols. If not satisfied, I will return books. Otherwise I will send \$5.00, plus delivery charges, then \$5.00 a month until \$25.00 is paid. (We pay delivery if you remit with coupon; same return privilege.)

Name.....

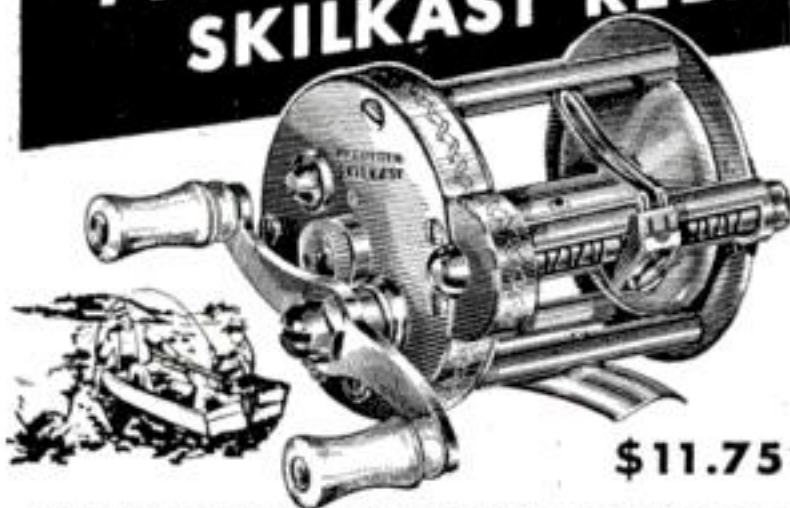
Address.....

City & State.....

Employed by..... PS-3

CAST Like an EXPERT

WITH
PFLUEGER
SKILCAST REEL



\$11.75

You'll cast better with the Pflueger Skilcast reel. Long, beautiful casts—or short casts with deadly accuracy. Always completely smooth. Pflueger mechanical thumb makes it easy. World-famous Pflueger construction and no-time-limit guarantee insure lasting service.

There's a Pflueger Reel for every type of fresh and salt water fishing from \$2.10 to \$35.00; also Baits, Spoons, Hooks, and Lines. Using Pflueger tackle makes any fishing better. Ask your dealer.

THE ENTERPRISE MFG. CO., AKRON, OHIO
88 years making fishing tackle

PFLUEGER
(Pronounced "FLEW-GER")
A GREAT NAME IN TACKLE

PARTS FOR MILITARY TRUCKS

FOR JEEP, DODGE, CHEV., GMC, STUDEBAKER, 4 WHEEL DRIVE
AND 6 WHEEL DRIVE. ALSO PARTS CATALOG. WRITE

JEEP TOPS and CURTAINS

All Brand New . . . Not Surplus

Made of Heavy Canvas Duck . . . Waterproof
MILITARY TYPE models, Top and Curtains, complete less bows.

\$59.50

TOP and CURTAINS, HALF CAB . . . MODELS CJ2A and CJ3A, complete with hardware, less bows.

\$65.00

TOP and CURTAINS, models CJ2A and CJ3A, complete with hardware, less bows.

\$88.80

When ordering please state exact model.
All prices FOB, K. C., 25 % dep. on CODs.



UNITED AUTO PARTS CO. INC.
1901 TROOST GR. 1800 KANSAS CITY, MO.

FREE! SEND FOR MY
NEW PLAN FOR A
BUSINESS OF YOUR OWN!

METALIZE BABY SHOES

Instructions
Include
Complete
Kit of
Supplies
& Beautiful
BRONZED
BABY SHOE

Add to your present income or have a full-time business. Fill huge demand for most precious keepsakes. Start at once—no big investment. Complete instructions include all processing methods. It's fun and very profitable. Start now — SEND NO MONEY — just name and address. KIKTAVI CO., Dept. S-533, 7217 S. Broadway, Los Angeles 3, Cal.

Build your own JET ENGINE!

SEND NO MONEY

Order these plans today

1. JET PROPELLED BICYCLE. Assemble your own. Photo and instructions \$1.00.
2. HOW TO MAKE EXPERIMENTAL JET ENGINES. Seven sheets drawings with information and instructions \$2.95.
3. BOTH OF ABOVE in one order \$3.75. SEND NO MONEY. Order both at once \$3.75 C.O.D. in USA plus c.o.d. postage. Send check or Money Order and we pay postage. Get other information too. Rush Order.

J. HOUSTON MAUPIN, Dept. 66, Tipp City, Ohio

HIGH POWER TELESCOPE

60 POWER—ALUMINUM TUBES—OPENS TO 33"
Variable Power Eyepiece Adjustable
to 15X, 30X, and 60X.
\$5.95

Leather Case Included
5 Sections, 4 Ground & Polished Lenses. Also used as 50X Microscope. Ready to use, only \$5.95. POSTPAID.
CRITERION CO. 331 CHURCH ST.
Dept. SA 8 HARTFORD 3, CONN.

Amazing New Freedom & Comfort with this

EASER For RUPTURE

For MEN, WOMEN and CHILDREN—10 Day Trial

No Fitting Required
JUST GIVE
SIZE—
AND SIDE

your size is
the measurement
around lowest
part of abdomen!

Right or Left
Side **\$3.95**
Double **\$4.95**

A powerful, form fitting washable support—Adjustable, no laces. Adjustable leg and side straps. Flat, strong groin pad. No cumbersome steel or leather bands. Unbeatable for comfort. Also used as after operation support. Invisible under clothing. Mail orders give measure around the lowest part of the abdomen and state right or left side or double. We Prepay Postage Except on C.O.D.'s.
Money-back guarantee if you don't get blessed relief
Delay may be serious—ORDER TODAY!

Wright Bracer Co., Dept. 18, 318 Market St., Newark, N. J.

OPPORTUNITY

in Aviation

DRAFTING & DESIGN SPECIALISTS needed now

Maximum training in minimum time! Thorough, practical instruction backed by more than 25 years of aviation technical experience. Training authorized under G.I. Bill.

Write today!
Illustrated Catalog
Registrar, Dept. 91,
Miami 30, Florida



TRAIN IN MIAMI -- AIR CAPITAL OF THE WORLD

Wheels Wheels



Wheels Wheels

5" Disc Wheel 5/8" Tire 5/16" or 3/8" sleeve.....30c ea.
6" Disc Wheel 5/8" Tire 5/16" or 3/8" sleeve.....35c ea.
7" Disc Wheel 3/4" Tire 3/8" sleeve.....45c ea.
8" Disc Wheel 1 1/8" Tire 1/2" sleeve.....70c ea.
7" Disc Wheel 1" Tire 1/2" ball bearing.....80c ea.
8" Disc Wheel 1 1/8" Tire 1/2" ball bearing.....\$1.00 ea.
8" Disc Wheel 2" semi-pneum. T. 1/2" B.B.....\$1.50 ea.
10" Disc Wheel 1.75 semi-pneum. T. 1/2" B.B.....\$1.50 ea.
12" Disc Wheel 1.75 semi-pneum. T. 1/2" B.B.....\$1.85 ea.
Above wheel prices includes hub cap. Plus Postage. C.O.D.'s accepted.
AXLES—Sizes 5/16 in., 3/8 in., 1/2 in.—Cut to size—End holes drilled.
UNITED WHEEL STAMPING CO.
12131 S. PEORIA STREET PS-3 CHICAGO 43, ILLINOIS

GROW MINIATURE TREES

Grow authentic, LIVE dwarf trees!
Fascinating hobby! Fabulous profit!

SEND FOR FREE SEED & INSTRUCTIONS!

MINIATURE NURSERY CLUB
Dept. 4-G.P.O. Box 18696, Rimpau Sta.
Los Angeles 19, California

NEW PENN YAN BOAT CATALOG

40 PAGES
NEARLY
100
MODELS

FREE! Get yours today. Catalog describing nearly 100 models, including Cartops®, Trailboats, other outboards, rowboats, canoes and sailers. Describes amazing new no-soak, no-leak, All-Wood *Striptites*. 40 pages. Penn Yan Boats, Inc., 35th St., Penn Yan, N. Y.

SWAP HOURS FOR DOLLARS!

Tell us how many hours you can spare for enjoyable, pleasant work right in your own neighborhood, and we'll show you how you can turn these hours into many dollars!

\$\$\$\$\$\$\$\$\$ within a few minutes of your home. Our new "Neighbor-Dealer" method enables men and women to earn real money in spare or full time right around home. Generous commissions advanced at time of sale. Selling experience not essential to start. NO stock to carry. NO investment necessary. NO deliveries. We furnish sales equipment, including FREE nylon hose for demonstrations. Our pre-tested way makes it easy for you!

REALSILK IS A RESPECTED NAME. Hundreds of millions of dollars of Realsilk Products have been bought and used by the American public. Over \$5,000,000 has been invested in National advertising. Realsilk is a household word, known for quality, service and fair prices.

SOLVE YOUR MONEY PROBLEM ONCE AND FOR ALL. A postage stamp can bring security, happiness and the better things in life for you and your loved ones. Find out now about Realsilk's new "Neighbor-Dealer" plan. Write today.

REAL SILK HOSIERY MILLS, INC.

DEPT. PS-3

INDIANAPOLIS 6, INDIANA

MEN - WOMEN RAISE

ORCHIDS

**IN YOUR
LIVING
ROOM!**

YEAR 'ROUND

No Equipment Needed

Any Climate, Maine to California

Fabulous PROFITS!
Spare or Full Time. Loads
of Fun for all the Family!

Fill your home with gorgeous Tropical Orchids, which sell up to \$25 a blossom—sometimes \$1000 or more for single plant. Huge purple Cattleyas, in great demand by Florists. Exquisite Cymbidiums, sometimes with 30 or more blooms on each stalk. Hundreds of others—many grow without soil, getting food from the air. Yellow Orchids, greens, blues, pinks, browns, every rainbow color. No equipment needed. Start on card table in your living room. Any climate, Maine to California.

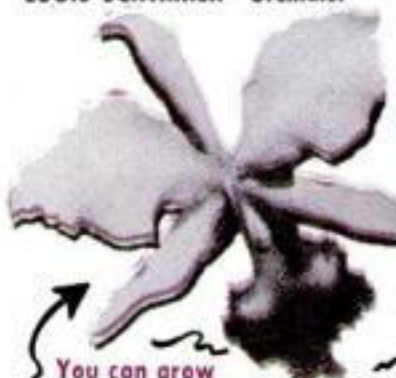
Successful Home Grower SHOWS YOU HOW!



LOUIS SCHIRMER—Orchidist

Louis Schirmer, Dean of U.S. Orchid Growers, shows you step-by-step how he and Mrs. Schirmer started with a few plants at home, developed a big-profit business, and grew an Orchid collection now worth a fortune. Learn how Orchids multiply—how one plant may eventually become hundreds, each as valuable as the first. No big investment.

No overhead. Takes few minutes a week. Big-profit orders come from individuals, florists, hotels, clubs, etc. Popular year-round gift. Millions sold by Mail-Order. Schirmer shows you how!



You can grow
gorgeous CATTLEYA ORCHIDS
like this in your own home!

**Complete Instructions and Living
Orchid Plants Sent for You to
Examine at Home Without Risk**

Complete Directions—secrets of the experts—in simple language, jam-packed with "show-how" drawings, gorgeous full-color pictures of Orchids. Also Certified, healthy Orchid Plants—Cattleya, Cymbidium, Epidendrum—from the Schirmer's own Gardens. Everything

you need to start is yours to examine at home, without risk. Free, Full details. Learn how you may become an Orchid Grower. Send no money! Write today. Airmail is quickest.

TROPICAL FLOWERLAND Dept. 2F

601 S. Vermont Ave., Los Angeles 5, Calif.

MAIL COUPON NOW!

Tropical Flowerland Dept. 2F
601 S. Vermont Ave., Los Angeles 5, Calif.

Rush me complete FREE details on your offer of Louis Schirmer's Instructions which show me how to grow Tropical Orchids at home. The instructions will include Living Orchid Plants and valuable home Profit-Plan. This does not obligate me in any way.

Name _____
Address _____
City _____ Zone _____ State _____

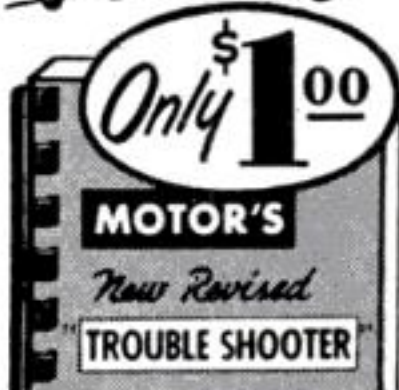
When You're Stumped By Any ? **AUTO TROUBLE** Find it **FAST!**

Brand-New Guide Makes
It Easy as A-B-C!

SPOT any car trouble fast—with brand-new, revised TROUBLE-SHOOTER. Suppose Fan Belt is noisy; index leads you instantly to 7 things that can be wrong. In same way, it covers engines, automatic transmissions, clutches, brakes, ignition, rear axles, overdrives, etc.—over 2,000 causes of trouble in all. Also clearly explains how electrical, fuel, ignition, brake & clutch systems actually work; plus helpful information on performance, fuel economy, speed, chokes, valves, cooling systems; why engines won't start, etc. Cross-section PICTURES. Spiral-bound; pocket-size. For beginners or experienced repair men. Prepared by editors of famous MOTOR manuals.

SEND NO MONEY

Just send your name, address. Pay postman only \$1 for each copy ordered, plus postage and C.O.D. charges. (Or pin \$1 to this ad and SAVE ALL SHIPPING CHARGES.) If not delighted, return book(s) in 7 days for prompt refund. **MOTOR Book Dept., Box FL, 250 W. 55th St., New York 19, N. Y.**



Tells how to Spot 108 Automatic Transmission Troubles • 7 Causes of Fan Belt Noise • 46 Causes for Engine "Misses" • 62 Causes of Excessive Oil Consumption • 8 Common Causes of Engine Vibration • 77 Causes for Clutch Troubles • 43 Causes of Rear-Axle Trouble • 140 Causes of Brake Trouble • 58 Checks for Faulty Springs and Shock Absorbers • 24 Different Causes of Wheel Noise • Also explains how electrical, fuel, ignition, clutch, brake & cooling systems work... PLUS LOTS MORE!

CORTINA
makes it FUN to

SPEAK FRENCH-SPANISH

RUSSIAN-GERMAN
ITALIAN-BRAZILIAN-JAPANESE
"Learn by Listening" to CORTINA RECORDS, at home, the NATURAL way—quickly, easily, cheaply.

Only 15 Minutes a Day!

The CORTINA method, famous for 71 years, teaches you to speak like a native. THOUSANDS have found it the most fascinating, most effective way to learn languages for Pleasure, Business, Travel, Culture. INVESTIGATE!

Send For FREE BOOK!

Big, illustrated 32-page book, "The Cortina Short-Cut" sent FREE. No obligation. Tells just what you want to know. Interesting. Get it!

ALL NEW RECORDINGS ON
UNBREAKABLE RECORDS

WRITE
TODAY

CORTINA ACADEMY (Est. 1882)
Suite 123, 105 W. 40 St., N. Y. 18, N. Y.

Please send me—without obligation—your free book.
I am interested in (check)

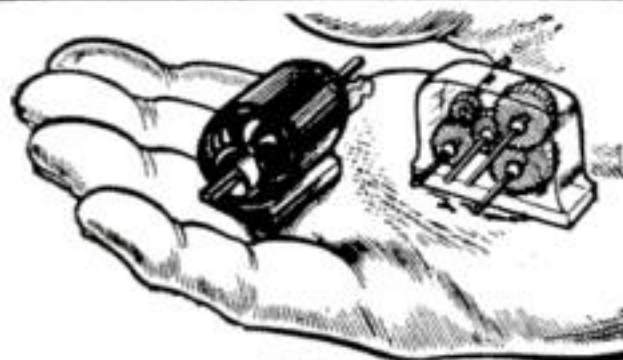
☐ French ☐ Spanish ☐ German ☐ Italian ☐ Brazilian
☐ Russian ☐ Japanese

Name.....

Address.....

City..... State.....

☐ VETS! Check if NOW eligible under G. I. Bill.



COMPLETE
MOTOR &
GEAR KIT
HOUSING
BATTERIES
CLIPS
only
\$2.98

POWERFUL MOTOR:

One of the smallest precision motors ever built yet does GIANT-SIZED JOBS. Drives Model Planes, Boats, Construction Sets, Working Models, Trains and Cars, etc., with amazing speed up to 6800 R.P.M. (or as little as 50 R.P.M. using the reduction gears that come with this exciting set. This MIGHTY-MIDGET does hundreds of jobs. It's a Honey! Looks exactly like a Big Motor yet measures 1"x1 1/4" and weighs one ounce. For only \$2.98 YOU GET LOTS MORE with this Mighty Midget. You get a complete set of gears and pulleys and a transparent multi-ratio gear box as well as a battery clip with two batteries and instructions. NO SHOCKS, SPARKS OR SHORTS. NO TRANSFORMER NEEDED. Reverses immediately too! Endless hours of fun. Enclose check or money order for \$2.98 for this entire set and we will pay postage. C.O.D. orders plus postage.

IMPERIAL SALES CO.

Dept. M-351, 480 Lexington Ave.

N. Y. 17, N. Y.



Enjoy YOUR OWN Lifetime INDEPENDENT BUSINESS Even If Now Employed

Here's a real money-making opportunity. Just take orders for exclusive top value shoe line chosen by millions. Sure fire repeaters. All sport, dress and work shoes. America's only cushioned Paratroop Boot. Shoes men go for. Big, BIG value! Magic Cushion. No investment or experience needed. Quick cash commissions up to \$4.00 pair. Giant Bonus. Samples to Producers. Write NOW for FREE outfit without obligation.

PARAGON SHOE CO.

739 Columbus Ave., Boston 20, Mass.

STUDY TO BE A DOCTOR of Psychology or Metaphysics

Obtain a Ps.D., Ms.D., or Ph.D. degree. Be a Teacher, Lecturer or Accredited Practitioner. Teach others how to achieve Health, Happiness and Contentment. Chartered by State. Write for FREE book telling how.

THE NEOTARIAN COLLEGE OF PHILOSOPHY

Desk 5, Pickwick Building

Kansas City 6, Missouri

ANALYZE HANDWRITING

MORE INCOME... MORE PRESTIGE
AND MORE SUCCESS!

FASCINATING, uncrowded profession—business, full or spare time. Free illustrated lesson and year-book shows how men and women in home and business find opportunity in analyzing handwriting. Understand People—Make Money. Free lesson and information about amazing opportunities if over 21. I.G.A.S., Inc., 810 Wilhoit Building, Springfield, Missouri

DAN LURIE
"America's Most
Muscular Man"
—on television's
"Big Top."

FAMOUS DAN LURIE

BARBELLS

with 4 courses—low factory prices

50 lb. set...\$ 8.48 | 150 lb. set...\$20.48
100 lb. set... 13.98 | 200 lb. set... 25.98

Write for
Free Catalog

Order by Mail; 50% with order, bal. C.O.D.
Extra wts. 12c per lb., F.O.B. plant

DAN LURIE BARBELL CO.

1701-53 Pitkin Ave., Dept. 370-C, Brooklyn, N. Y.

A "GOOD HAND" HELPS YOU SUCCEED! LEARN TO WRITE WELL

Handwriting quickly improves with our easy-to-understand picture lessons! Put your spare time to good use; send today for FREE BOOKLET, "How to Become a Good Penman," or check volumes wanted below at \$1 each: ☐ Business Writing ☐ Artistic Writing ☐ Card Writing ☐ Bird & Design Flourishing ☐ Engraving Alphabets. COMPLETE SET \$4.50. Ask for price list of penman's supplies.

beautifully
written, plus
special pen-
point for
shaded
writing.
OUR
53rd
YEAR
Only 10¢

TAMBLYN SCHOOL of PENMANSHIP
S. A. Ziller, Pres. 438 Ridge Bldg., Kansas City, Mo., USA



FULLY GUARANTEED TIRES COST LESS!

Nationally famous FIRESTONE, GOOD-
RICH, U.S. ROYAL, GOODYEAR, and
other makes. Every tire selected and
inspected for your safety.

FREE TUBE WITH PASSENGER TIRE NEW TREAD TIRES GUAR. 24 MO. S
(MUD & SNOW or WHITE WALL TIRES \$1 EXTRA)

550x16	7.98	600x16 (6)	9.98	650x20 (8)	19.95	700x16 (6)	14.48
550x17	7.98	650x15	9.98	640x15	8.98	710x15	10.48
600x15	7.98	650x16	10.48	670x15	9.98	760x15	11.48
600x16	7.98	650x16 (6)	12.48	700x15	11.48	820x15	12.98

AAA PREMIUM GRADE GUARANTEED 18 MONTHS							
550x15	5.48	700x15	5.98	760x15	5.58	750x20 (10)	14.98
600x16	5.28	700x16	6.78	550x17	5.48	825x20	18.68
600x16 (6)	6.58	700x16 (6)	7.98	600x20	9.78	900x20	18.98
640x15	5.68	750x16 (6)	8.98	650x20	10.88	1000x20	19.98
650x16	5.78	800x15	6.88	700x20	12.88	1000x22	21.98
650x16 (6)	6.98	820x15	7.48	32x6 (8)	10.48	1100x20	20.98
650x15	5.98	710x15	6.09	32x6 (10)	12.48	1100x22	21.98
670x16	6.18	550x18	5.98	750x20 (8)	12.98	1100x24	23.98

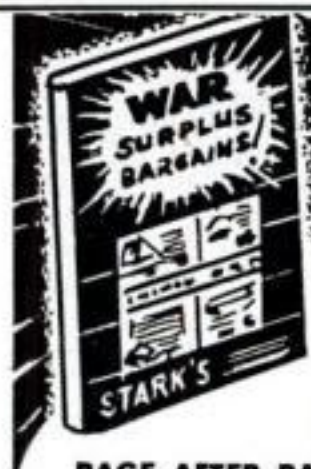
GOOD TIRES GUARANTEED 12 MONTHS							
600x16	4.14	700x16	5.14	32x6 (8)	8.84	825x20	14.24
650x16	4.54	670x15	4.74	32x6 (10)	10.84	900x20	13.34
650x15	4.34	650x20	7.84	750x20 (8)	8.54	1000x20	14.14
700x15	4.64	700x20 (8)	8.94	750x20 (10)	9.94	1100x20	16.14

MILITARY SPECIAL				New Tread Guar. 24 Mos.			
AA Guaranteed 12 Months—				600x16	8.98		
900x16 10.69 900x20 19.98				600x16 (6)	9.98		
750x20 10.98 1100x20 21.98				700x15 (6)	15.95		
AAA GUARANTEED 18 MONTHS				750x20 (8)	24.98		
900x16 14.98 750x20 16.48							

Largest stock of used tires in the
East. Thousands of satisfied custom-
ers. Write for Free Catalogue.
MONEY ORDER OR CHECK
WITH ORDER. NO C.O.D.'s

PYRAMID TIRE CO.

1333-35 North 5th St.
Dept. S., Phila. 22, Pa.



WAR SURPLUS BARGAINS

**\$500,000.00 INVENTORY for
QUICK LIQUIDATION**

Surplus items—hundreds of them
for home, shop, factory, farm
and outdoor use. New items,
used items, reconditioned items—
all at tremendous savings—all
priced for quick sale.

PAGE AFTER PAGE OF VALUES

This big catalog shows page after page
of amazing money saving values. Write
for your copy today. Send 10c to cover
postage, mailing, etc. Write today!

SEND TODAY FOR YOUR COPY

STARK'S

509 So. State St.
Dept. PS-353
CHICAGO 5, ILL.

10c

UNLIMITED OPPORTUNITIES IN ENGINEERING

**DEGREE
IN 27 MONTHS**

Study Engineering in this world-famed school. Established
1884. Demand for our graduates exceeds supply. Approved
for Korean Vets.

Bachelor of Science Degree in Mechanical, Civil, Electrical,
Chemical, Aeronautical, Radio (Television) Engineering;
Business Administration and Accounting. Also—36 weeks
certificate courses in Surveying and Drafting.

Personalized instruction. Accelerated courses. Non-essentials
eliminated. For ambitious, earnest students. Earn your de-
gree in the shortest possible time. Preparatory courses.
Placement service.

Extensive Campus. Well equipped, new and modernized
buildings; up-to-date labs. Low cost. New terms start quar-
terly. Enter March, June, September, January.

Mail Coupon Today

TRI-STATE COLLEGE

533 College Avenue, Angola, Indiana

Please send me free catalog and special information. I am
particularly interested in courses as checked:

☐ Mechanical ☐ Civil ☐ Electrical ☐ Chemical ☐ Aeronautical
☐ Radio (Television) ☐ Business Administration ☐ Accounting
☐ Short Diploma Courses

Name.....

Address.....

TRY A GOOD
BRUSH AND
SEE FOR
YOURSELF...



**you can do
an expert paint job
right from the start**

HERE'S HOW: A good paint brush
does faster work because it flows the
paint on smoothly and evenly.

USE BAKER BRUSHES AND FEEL THE DIFFERENCE!

Whatever the paint job, a Baker
Brush will give you streak-free,
uniform, professional results...
in less time... with less effort.



BETTER BRUSHES FOR BETTER PAINTING
—a style for every purse and purpose—



BAKER BRUSH CO., INC.
83 Grand St., New York 13, N.Y.

Please send me your FREE book,
"How to do a GOOD paint job."

Name.....

Address.....

City..... Zone..... State.....
(Please print)

FREE 24-page book
tells you how to
choose and use a
paint brush. Paint
like a professional
right from the
start. Write for this
FREE illustrated
guide to perfect
painting today.

Another NORTHROP Graduate Chooses Jet Engine Career

Like many other Northrop Aeronautical Institute graduates, Keith Englehart chose the fascinating field of jet engines for his career. He's moving ahead rapidly, thanks to his thorough, practical training at NAI. Already he's won recognition for helping set up a new type of test stand for jet engine fuel systems!



NORTHROP can help YOU to Aviation Success! It's the man with knowledge and training who gets rapid promotion—the big share of important work. Lack of training can penalize your chance for success in the rapidly changing aviation science. Northrop Aeronautical Institute gives you the background—helps you make the most of opportunity!

Your NORTHROP Diploma—a passport to Opportunity! Northrop graduates are sought by concerns throughout the aviation industry. The demand is so great, Northrop graduates have their choice of interesting, exciting, profitable jobs prior to graduation!

Begin Your Aviation Career at NORTHROP! Northrop Aeronautical Institute, a division of Northrop Aircraft, Inc., is an accredited technical school open to public enrollment offering up-to-the-minute courses in Aeronautical Engineering and Aircraft & Engine Mechanics. Write today for complete enrollment information and a fully illustrated catalog showing the modern Northrop training facilities. There is no obligation!

ATTENTION KOREA VETERANS Northrop Aeronautical Institute is fully approved for your training and for all other veteran training.

Northrop Aeronautical Institute

1525 E. Broadway, Hawthorne, Los Angeles County, Calif.

NORTHROP AERONAUTICAL INSTITUTE

1525 E. Broadway, Hawthorne, Los Angeles County, Calif.

Please send me immediately the Northrop catalog, employment data, and schedule of starting dates of classes. I am interested in:

☐ Aeronautical Engineering ★ Aircraft & Engine Mechanics ☐

Name _____ Age _____

Address _____

City _____ Zone _____ State _____

VETERANS: ☐ Check here for Special Veteran Training Information

ENCL



AUTO BODY MEN
Expd. comb. paint and metal; excel. cond., high earnings; Olds. dir. Norman Motors, 1012 Chicago-av., Evanston. University 4-4100.

AUTO body and fender man with paint. Also good body work. 661 E. 36th St., Chicago 16, Ill.

TOOL READY FOR 2-20 S. MICHIGAN.

AUTO body fender man on 50-50. 651 W. 36th St., Chicago 16, Ill.

Auto body fender on 50-50. 651 W. 36th St., Chicago 16, Ill.

AUTO body fender on 50-50. 651 W. 36th St., Chicago 16, Ill.

AUTO body fender on 50-50. 651 W. 36th St., Chicago 16, Ill.

AUTO BODY-FENDER MAN
Ideal working conditions: top pay. Woodbury, 4930 W. 12th St., Chicago 16, Ill.

AUTO BODY-FENDER MAN
Expd. and an apply. Good pay. 3339 WASHINGTON.

AUTO BODY-FENDER MAN
IMMEDIATELY. MUST BE EXPERIENCED. 3110 W. 12th St., Chicago 16, Ill.

AUTO BODY-FENDER MAN
U. mech. exp. 3110 W. 12th St., Chicago 16, Ill.

AUTO BODY-FENDER MAN
To work on cars and trucks. Lincoln 9-5833.

Learn This Craft—Earn Big Money

Look at the Help Wanted ads in your paper. The billion-dollar auto repair trade needs trained men NOW! The demand is big... pay is big... opportunities are great. You have a chance to grow with this growing trade, perhaps set up your own profitable shop.

CASH IN ON YOUR SPARE TIME!

You can begin your Auto Body & Fender Training at home in spare time with the proven UEI plan. You learn about appearance reconditioning, metalwork, painting, welding, other practical phases without leaving your present job. Then get actual practice in our large, well-equipped shops, repairing wrecked cars under the guidance of skilled instructors. Get FREE book and all the facts by sending coupon NOW!

UTILITIES ENGINEERING INSTITUTE 2523 Sheffield Ave., Dept. XM-20, Chicago 14, Ill.

MAIL TODAY FOR FREE FACTS

Auto-Crafts Div.
UTILITIES ENGINEERING INSTITUTE
2523 Sheffield Ave., Dept. XM-20, Chicago 14, Ill.
YES! Rush FREE Book and full facts on Auto Body & Fender Repair Training.

Name _____ Age _____

Address _____

City _____ Zone or County _____ State _____

☐ Check for special information if under 17.

UEI

has been training men for industry since 1927.

ELECTRIFY your SEWING MACHINE

NEW LOW PRICE! \$10.50 1 YEAR GUARANTEE

Buy direct from manufacturer and save! Kit comes fully wired, installed in a jiffy. Fits all machines! You get **ALL-NEW PARTS**

- Motor & Bracket
- AC-DC 115v 60c
- Multi-speed foot control
- Cord set & block
- Easy instructions
- Steel pulley & belt

FREE... reg. \$2.95 chrome SEWITE given with every kit.

10 DAY FREE TRIAL—ORDER NOW!

Send no money, pay COD or send money order and we'll pay postage. Please state whether wheel on your machine turns toward you or away from you. Shipping wt. 6 lbs.

SENIOR SEWING MACHINE CO.
Box 54 Dept. PS-46 Brooklyn 10, N. Y.

Buy direct from manufacturer and save! Kit comes fully wired, installed in a jiffy. Fits all machines! You get **ALL-NEW PARTS**

500 TRICKS

Douglas Magicland

MAGIC TRICKS

IT'S FUN TO DO MAGIC

Be popular! Amaze—mystify—entertain! For 30 years Douglas has satisfied customers all over the world. Now, you can enjoy this fascinating hobby. Only 10c brings our Catalog 500 Tricks, containing brand new tricks for pocket, parlor, stage. Join in the fun—send 10c today!

Douglas Magicland, Dept. P, Dallas, Texas

Free Book

MONEY in HAMSTERS

The new wonder animals from Syria. Often called Toy Bears. Delightful pets. Everyone desires them. Wanted by laboratories and pet shops. Clean, odorless. Raise anywhere. A profitable hobby or business. Write today for free book of details.

GULF HAMSTERY
15 Fir St. Gulf Shores, Ala.

250 POWER

Complete Telescope Lens Kit only \$3.49 postpaid

Conquer Space. Explore the Universe. Planets, Moon Craters, New Stars, etc. Complete Lens Kit consists of 80 inch focal length ground and polished objective lens, eyepiece lenses for 50 POWER, 100 POWER, 150 POWER, 200 POWER, 250 POWER, and all necessary lens fittings. Easy to make from simple step by step instructions. (Tripod and mount not included.) Money back guarantee.

BUSSE SALES, CO., Hartford, Conn., Dept. PS-9

ELECTRIC APPLIANCE REPAIRMEN

GET SAMPLE COPY

Write

Find all the sources of supply for parts on all **ELECTRIC APPLIANCES**... Washing Machines, Vacuum Cleaners, Ranges, Sewing Machines, Small Appliances, etc.

The Only Publication Especially for the Appliance Repairman

SEND ONLY 20¢ IN STAMPS OR COINS FOR SAMPLE COPY

ELECTRIC APPLIANCE SERVICE NEWS
Dept. S-50 176 W. Adams St., Chicago 3, Ill.

COMPLETE NEW

FALSE PLATE IN 24 HOURS

FROM YOUR OLD NOW LOW AS.. \$15.95

New process transforms old, broken or loose plates into new lightweight plastic plates. NO IMPRESSION NEEDED. Let us help you enjoy life again. You will marvel at this revolutionary new method. Using your own old plates, we will remake them completely in only 24 hours. Missing teeth are carefully matched and replaced. Work is done on an absolute **MONEY BACK GUARANTEE**. Quit Suffering!

—Just rush your name and address for full **FREE DETAILS**. If your teeth are loose, we'll tell you how to tighten them before duplication. Act now.

Tru-Grip Dental Labs., 7th Fl., 127 N. Dearborn, Dept. 20, Chicago 2, Ill.

YES PAL! IN 10 MINUTES OF FUN A DAY YOU Can Become an All-Around, All-American HE-MAN Like We Did!

We Were
**SKINNY
WRECKS
LIKE
YOU
BEFORE**

GRIMM—
NOW FULL
OF PEP



I added
**10" around my CHEST
6" to my ARMS**

I gained 30 lbs. of steel-strong
MUSCLES You bet
they don't call me
SKINNY any-
more.

SICKLY
GRIMM
BEFORE

Chicago, Ill.

I gained 70 lbs. of
MIGHTY MUSCLE!

You can be me in a matter of
weeks through Jowett training.
You can win a **BIG SILVER
TROPHY** as I did. I
went from **SKINNY**,
puny 90 lbs. to this
All-American **HE-MAN**.

CLEVELAND
BEFORE
90 lb.
SKELETON

Rochester,
N. Y.

CLEVELAND
AFTER
160 lb.
HE-MAN



COME ON, PAL, NOW YOU give me
10 PLEASANT MINUTES A DAY
IN YOUR OWN HOME
and I'll give YOU A NEW HE-MAN BODY
for your OLD SKELETON FRAME

NO! I don't care how skinny or flabby you are. I'll
make you OVER by the SAME method I turned
myself from a wreck to the strongest of the strong.
Why can't I do for you what I did for MANY
THOUSANDS of skinny fellows like You?

Develop YOUR 520 MUSCLES
Gain Pounds, INCHES FAST!

YES! You'll see INCHES of MIGHTY MUSCLE
added to your ARMS and CHEST. Your BACK
and SHOULDERS broadened. From head to heels,
you'll gain SIZE, POWER, SPEED. You'll be
A WINNER in EVERYTHING you tackle.

Millions Sold for \$1
GET ALL 5 PICTURE
PACKED COURSES FREE
BEFORE \$1 PRICE GOES BACK

Send 10c for Postage & Handling



Which are YOU like now—
The SKINNY Cleveland
& Grimm
BEFORE or the
MIGHTY HUSKIES
They are NOW?

GEORGE F. JOWETT
"Champion of
Champions"



LAST CHANCE—ALL FREE COUPON! 1. PHOTO BOOK
2. MUSCLE METER 3. 5 COURSES

Dept. PS-33

Tell Me How To
WIN \$100, etc.

"Jowett Courses
greatest in
World for
Building
All-Around
HE-MEN"
R. F. Kelley
Physical
Director

JOWETT INSTITUTE OF PHYSICAL TRAINING
220 FIFTH AVENUE, NEW YORK 1, N. Y.

Dear George: Please mail to me FREE Jowett's Photo Book of
Strong Men and a Muscle Meter, plus all 5 HE-MAN Building
Courses: 1. How to Build a Mighty Chest. 2. How to Build a
Mighty Arm. 3. How to Build a Mighty Grip. 4. How to Build
a Mighty Back. 5. How to Build Mighty Legs—Now all in One
Volume "How to become a Mighty HE-MAN." ENCLOSED FIND 10c
FOR POSTAGE AND HANDLING (no C.O.D.'s).

NAME _____ AGE _____

ADDRESS _____

CITY _____ ZONE _____ STATE _____

HOW TO TURN YOUR BASEMENT OR ATTIC INTO A "RECREATION ROOM"!

Need More Room At Home For Carefree Social Times . . . More Play Space For Your Youngsters—
This Complete New "How-To-Make-It" Book, HOW TO BUILD A RECREATION ROOM IN YOUR
BASEMENT OR ATTIC, Will Show You How to Plan and Build "The Room Of Your Dream" . . .



Never before a book like this! Every step in building your recreation
room is given in easy-to-understand diagrams, illustrations
and explanations. Scores of suggestions for every need,
covering every size room or space available.

HOW TO MAKE THE MOST OF YOUR BASEMENT ROOM

Even if your basement is just a plain cellar, imagine how won-
derful it would be to turn it into a luxurious lounge—and with
this wonderful book there is nothing to it. "Just like a Cin-
derella Pumpkin turning into a Coach." Just think, your plain-
looking basement can be turned into a room for entertainment
made to resemble a Night Club of your own choice; Down to the Sea, On
a Rustic Theme, Under the Big Top, Below the Border, etc. Or you can
build an All-Purpose Room, A Room for Year 'Round Gardening, Teen Age
Room, Music Room, A Man's Den, Home Craftsman's Work Room, Laun-
dry Room with Glamour, etc. No matter what you make, your friends
will marvel at this new added beauty and luxury to your home.

Complete Information On Planning and Building Makes Everything So Easy . . .

If you can drive a nail, you can use this book . . . It's as simple as that! Everything from putting the plan
on paper to finishing off your recreation room is covered. Each plan put forth for your selection was care-
fully thought out to the last details. You are shown How to Overcome Dampness—Enclosing Basement
Rooms—Framing for the Walls—Wall Covering Materials—Plywood—Novel Wall Treatment and Partitions—
A New Ceiling for Your Recreation Room—A Good Floor for the Basement—Painting Basement Floors—
Asphalt Tile for Basement, etc.

Give Your Attic That "Magic Touch" . . .

Turn your attic into a Playroom for Children, Study, Den, Sewing Room or even a Colorful Guest Room.
Just follow the easy-to-read detailed plans. You get step-by-step explanations with illustrations on Struc-
tural Alterations—Windows—Skylight—Framing and Panelling—Finishing the Floor—Insulating the Attic—
Room with Two Lives—Using Hard Board Planks and Tiles, etc.

You Don't Have To Be a Carpenter . . .

Remember, this book was written so that you, the average home owner,
even if you never picked up a hammer before, can build everything that
this book contains. Not only will you save money on doing your own build-
ing . . . and have hours of fun—but after you're all finished you will have
a room that will bring joy to every member of your family. Send for this
amazing new book, "How to Build a Recreation Room in Your Basement or
Attic" by Bob Baer, NOW! Big Book 8 1/2"x11". 96 pages. **ONLY \$1.50**
Over 200 Illustrations and How-to-Make Diagrams.

UNCONDITIONAL MONEY BACK GUARANTEE

Just send your name and address with payment, C.O.D.'s also accepted (but
you pay postage). Money back either way if not completely satisfied.

Whether your hobby is
carpentry or horticulture,
sewing or sculpture, or
whether you have toddlers
in need of more play space
or teen agers in need of a
room for carefree social
times—here is complete
information on planning
and building a room for
your family's recreation.

Never before
such a complete
authoritative
book for so lit-
tle money.

ONLY
\$1.50



Other Ideas For Upstairs

You are shown how to
plan and make a Retreat
for the Hobbyist—How
to Furnish A Recreation
Room—Dividing Rooms
for Greater Use—Build-
ing Storage Walls or
Sections, etc.



MECRAFTS, 799 Broadway, Dept. JJ2, New York 3, N. Y.

LEARN UP-TO-DATE APPLIANCE REPAIR



**MAKE GOOD MONEY
at HOME!**

A MODERN BIG PROFIT ONE-MAN BUSINESS CAN BE YOURS AT HOME — SPARE OR FULL TIME. New visual "shop-practice" method quickly shows you how to repair Home Freezers, Refrigerators, Vacuums, Garbage Disposals, Automatic Washers and Dryers, Motors, Fluorescent Lights, Fans, Irons—yes, even House and Industrial wiring. You can set up shop in your garage, basement, porch or attic, wherever you have a little bench space. No costly leases—no big overhead—no need to hire others—no selling—we show you how to make business come to you.

BIG MONEY—SECURE FUTURE—INDEPENDENCE. Hundreds of plain-as-day "How-to" photos and drawing make it easy. F. V. in N. Y. says: "I made \$800 in 3 months while studying." T. E. H. in W. Va. says: "Made \$14 a day while learning."

NO PREVIOUS EXPERIENCE NEEDED. You will get, in addition to complete instructions, my book, "How to Open Your Own Electric Appliance Business." It shows you how to start small and grow big. Everything furnished to help you build your own Big Profit business at home. Yes! We even supply you with appliance tester and tools! Write today for this amazing new Home Business Plan—It's FREE! Send no money—just your name and address.

PACIFIC TRAINING SCHOOL, Dept. S-533
7217 S. Broadway, Los Angeles 3, California.

MAIL COUPON NOW—SEND NO MONEY

PACIFIC TRAINING SCHOOL, Dept. S-533
7217 S. Broadway, Los Angeles 3, Calif.

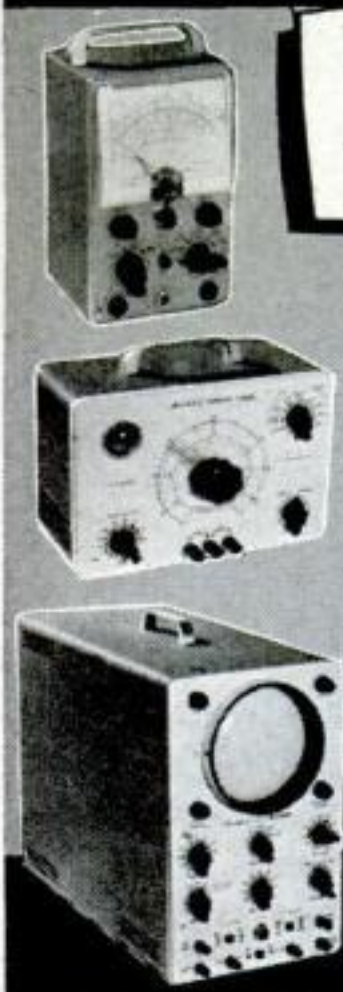
Please rush me, FREE of charge, full details of your new home business plan that shows me how to learn modern Electrical Appliance repair and servicing. Remember, I am under no obligation whatsoever.

NAME.....

ADDRESS.....

CITY.....ZONE.....STATE.....

BUILD YOUR OWN Heathkit TEST EQUIPMENT



Heathkits form a complete line of electronic testing and measuring equipment for hobbyists, radio and TV servicing, appliance repair, laboratory research, and engineering development of all kinds. They are completely engineered quality instruments supplied unassembled (in kit form).

Heathkits are both easy and fun to build! All punching, forming, and painting has been done for you—you get only highest quality components—and the complete, detailed instruction manual tells exactly how to assemble and use the kit. Put them together yourself and eliminate expensive construction costs—and you learn while building.

Write for free catalog today!

HEATH COMPANY
BENTON HARBOR 16,
MICHIGAN

How 15 Men Got Better Jobs Today

RECENT Survey shows that, during one typical 120-day period, 1973 I.C.S. students moved up to better jobs! Based on that figure, it means that every 24 hours an average of 15 more men get better jobs due to I.C.S. home training. YOU can win promotion, higher pay, the same way. Learn at home, in spare time. Choice of 391 profitable subjects. Architecture, Engineering, Chemistry, Art, Business, Radio and TV, etc. 203 instructors. COSTS ONLY A FEW CENTS A DAY.



2 FREE BOOKS. Write for free book; state subject that interests you. Also free, "How to Succeed," 38 pages of valuable tips on how to get ahead faster. Just send your name, address. No obligation. International Correspondence Schools, Box 7634-N, Scranton 9, Penna.



This NEW Type ACCORDION

is much easier to play, and with our new method you can actually learn to play all by yourself.

Write for Free Literature

HUNIBEL ACCORDIONS

5154 N. Clark St., Chicago 40, Ill.

Reduce RADIO NOISES

SIMPLY PLUG Radio or Appliance cord

into Noise Eliminator and plug into wall socket. Enjoy reception FREE from many distracting noises. Send No Money, pay postman \$1.25 each (2 for \$2.00) plus postage or send cash and we'll mail postpaid. Try 5 days, money back if not delighted. Many hundreds of satisfied users. Send for yours today.

MERIT SALES, DEPT. R-27 \$2.00
800 Edmondson Ave. Baltimore 28, Md.

RAISE GIANT FROGS

Nuford
Giant



Millions used yearly!

Frogs sell \$5 dozen. Breeder lays up to 20,000 eggs yearly. Season just starting! Men & Women get ready now for this year's eggs. Small pond starts you. New book tells how! Send for illustrated FREE folder today. Write to

MARLBORO HOUSE-11
1035 Marlborough, Detroit 15, Mich.

TREASURE -- \$10,000

New locator detects metals, valuable minerals and buried treasure. Money-back guarantee of superiority.



Also geiger counters. Govt. reward of \$10,000 for uranium discovery. Write for FREE information.

THE GOLDAK COMPANY
1544 W. GLENOAKS BLVD., GLENDALE 1, CALIF.



Party Records FOR ADULTS ONLY

THEY'RE SENSATIONAL! Brand new series of exclusive phonograph records. Spicy songs that will make your party a howling success. Songs and music in a style you will like. Complete set of SIX DIFFERENT songs on good quality 10-inch 78 R.P.M. records, sent prepaid for \$4.95 in sealed package. No C.O.D.'s.

NATIONAL, Dept. 478,
TOLEDO 9, OHIO

BOX 5—STA. E

NOW FOR THE FIRST TIME

- You will know your car's actual horsepower
- You will know the condition of your brakes
- You will know when your wheel alignment is "off"
- You will know the gasoline best suited for your car
- You will be able to check the results of an expensive repair job on your car

PERFOMETER

TRADE MARK

THE FIRST "ON THE CAR" INSTRUMENT GIVING
ACTUAL HORSEPOWER!

the Complete
Car Test
Instrument

for
Performance
Minded
Drivers

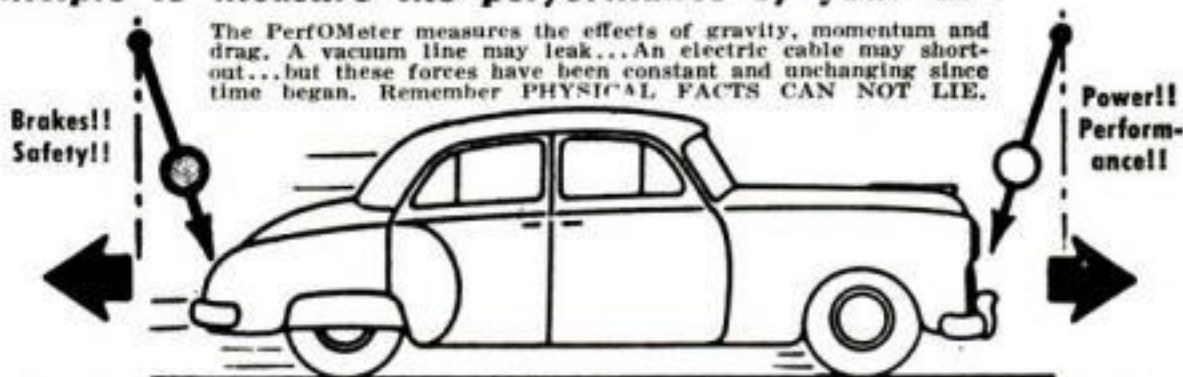
PerfOMeter, a new testing device gives you these answers, and many more, quickly and accurately.



PerfOMeter gives the real story on every factor in your car's operation. You can now do your own road tests. PerfOMeter is the only "on the car" instrument giving actual horsepower. We like the description of it by the enthusiasts at Motorama . . . "the pocket sized dynamometer." Actually the readings obtained will be more accurate than those obtained on a regular service station dynamometer as the tests are made under actual road conditions and not subject to the roller slippage experienced on dynamometers.

It may look like a vacuum gauge, but it isn't. Instead, it's a clever instrument that uses a time-tested principle to measure the performance of your car.

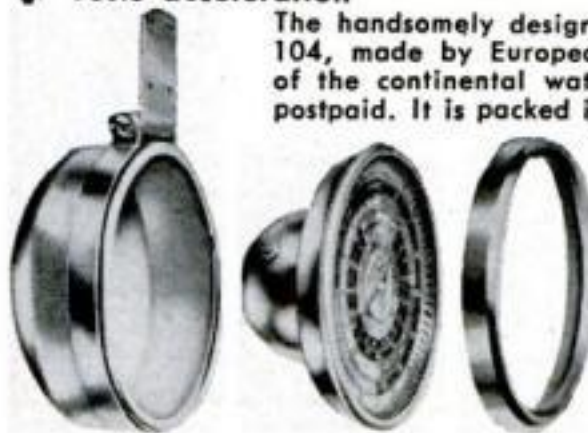
**YOU CAN
ROAD TEST
...your own car!**



The PerfOMeter measures the effects of gravity, momentum and drag. A vacuum line may leak...An electric cable may short-out...but these forces have been constant and unchanging since time began. Remember PHYSICAL FACTS CAN NOT LIE.

PerfOMeter is the one and only complete test instrument available at a reasonable price for the performance minded driver. At a glance it gives the following precise information on your car.

- ✓ Actual road horsepower
- ✓ Shows best gas for "Your" car
- ✓ Trouble shooting and tune up
- ✓ Tests acceleration
- ✓ Shows wind and rolling resistance
- ✓ Pick up ratings
- ✓ Shows brake efficiency in percent
- ✓ Stopping distances in feet
- ✓ Pin-points wheel alignment
- ✓ Measures engine pulling power
- ✓ Tests hill climbing ability
- ✓ Shows exact road grades



The handsomely designed PerfOMeter De Luxe Model 104, made by European craftsmen with the integrity of the continental watchmakers art, sells for \$22.50 postpaid. It is packed in a beautiful multi-colored gift box and comes complete with a chrome dash mount and a chrome steering column bracket. A comprehensive 64 page illustrated book giving road test figures on all important American and Foreign cars and covering all phases of road testing is included free with every PerfOMeter.

Send your order today

AUTOSPHERE CORPORATION, DEPT. PS3
11 E. 48 St. New York 17, N. Y.

Please send.....DeLux Model 104
 PerfOMeters at \$.....

Name.....
 Address.....
 City.....Zone.....
 State.....

☐ Check enclosed ☐ C.O.D.

Jobbers inquiries invited.

MARCH 1953 63



SEND
NO MONEY
•
MORE THAN
4000 PAGES
•
2750
PICTURES

On Approval 9 BIG COMPLETE BOOKS BUILDING, ESTIMATING, CONTRACTING

Examine this Up-to-Date Edition for 10 days. See how these nine books supply easily understood training that will help you to get a better job and make more money, or start a profitable business for yourself. Think what a BIG help it will be to have them handy for use in solving all sorts of building problems.

Learn to draw plans, estimate, do all-new construction and modern remodeling to meet fast growing demand. More than 4000 pages of practical, pay-raising information with 2750 helpful illustrations, on such subjects as blueprint reading, concrete forms, masonry, carpentry, steel square, electrical wiring, plumbing, heating, painting, and hundreds more.

In our more than 50 years we have never offered more complete building information. Send the coupon TODAY.

(A year's consulting privileges with our engineers now given with these books without extra cost.)

AMERICAN TECHNICAL SOCIETY—Publishers Since 1898
Dept. G320, Drexel Ave. at 58th St., Chicago 37, Ill.

I would like to examine your 9-Volume Set of Building, Estimating, Contracting Books. I will pay the delivery charges only, but if I choose I may return them express collect. If after 10 days' use I prefer to keep them, I will send you \$3 plus postage and pay the balance at the rate of only \$4 a month until \$34.80 has been paid. Include consulting service as offered above.

Name _____

Address _____

City _____ State _____

Please attach letter giving employer's name and address (if self-employed give business man reference). Men in service please give home address.

New!—Activated! SPAR-KOVERS

Protect Engines from Shorting-Out



Patent applied for.

Spar-Kovers are designed to protect spark plugs from moisture condensation, fog, dew and road dirt. The long-life rubber contains a special ceramic insert which is activated to soak-up moisture. Engine operating heat reactivates.

Spar-Kovers are available in 10MM, 14MM and 18MM sizes. They are easy to install—no tools necessary. Simple installation instructions furnished. Available for all spark-fired engines. Buy direct and save.

Guaranteed for the life of your ignition system

Please send 14MM SPAR-KOVERS immediately:

Enclosed is my check or money order for

- | | |
|--|--|
| <input type="checkbox"/> One for 75c | <input type="checkbox"/> Set of four \$2.98 |
| <input type="checkbox"/> Set of six \$3.89 | <input type="checkbox"/> Set of eight \$4.98 |

Add 35c for postage and handling in sets of 4 or more.

Name _____

Street _____

City _____ State _____

☐ Send information on costs of SPAR-KOVERS other than 14MM

LUCAS PRODUCTS CO., Box 201, North Canton, Ohio

TV BARGAINS GALORE

Here's a golden opportunity to own a Television Set.

ADD A SECOND SET

Many homes need two TV sets so the family can have a choice of programs.

STUDENTS NEED TV's

Students studying TV and electronics can now own a TV for experimental use.

TABLE MODELS FOR APARTMENTS, TRAILERS, CRUISERS. If you live in a small apartment, or a trailer, or if you own a cruiser, you will want to own one of our fine TV's. Here's a partial list of our many hundreds of fine reconditioned, guaranteed used sets.

10" GE Table \$79.50, 10" RCA Table \$99.50, 12" Philco Table \$105.00, 12" Admiral Console \$119.50 and 16" Philco Table \$135.00. Price includes tax, and shipping. Don't wait. Order your set right now. Our prices are right and we can make immediate shipment. Enjoy TV at rock bottom prices.

Dealer inquiries invited. Price lists available.

BROWN-SHAW TELEVISION SERVICE CO.
11843 LIVERNOIS AVE. DETROIT 4, MICHIGAN

BIG MONEY and your OWN BUSINESS in AUTOMATIC MERCHANDISING

Get started in the fabulous young business—automatic merchandising. Learn how small operators share in BILLION DOLLARS spent yearly in pennies, nickels, dimes for vended products. **STUDY AT HOME** so you can operate your own machines vending coffee, candy, sandwiches, other products. Write for amazing Reader's Digest reprint, "Insert Coin Here," the story of vending, **SENT ABSOLUTELY FREE.** Also how you can master secrets of selling merchandise automatically. **RUSH NAME AND ADDRESS ON POSTCARD TODAY.**

SUPERMATIC REPORTS, 1209 Calhoun, Dept. 53, Houston 3, Texas



HULA POPPER • GETS BIG BASS

Surface popping lure. Ideal combination of noise, action, casting and hooking qualities. Pops, plunks, jerks, twitches — obeys your slightest wrist command. Rubber Hula Skirt imitates live bug. At your dealer 5/8 oz. or 1/4 oz., \$1.25. Fly rod size, 75c.



FRED ARBOGAST & Co., Inc., 2353 W. North St., Akron 3, Ohio

FREE WRITE TODAY FOR YOUR BIG FREE ARBOGAST COLOR CATALOG—FULL OF PICTURES OF CATCHES

MAKE ANY SIZE FOLDAWAY TABLE, WORK BENCH ETC.

4 COMPLETE 30" LEGS
\$7.98 PLUS POSTAGE
FOR 12# WEIGHT OR SHIPPED EXPRESS COLLECT
ORDER TODAY!

with **FOLDAWAY** TUBULAR STEEL **FOLDING LEGS**

SHIPPED COMPLETE, READY TO FASTEN TO YOUR TOP IN A MINUTE—FOLDS FLAT, EASY TO CARRY AND STORE—RUBBER TIPPED—MAKE A SMART PING PONG DISPLAY, MODEL TRAIN, PICNIC OR BANQUET TABLE. Satisfaction guaranteed.

FREE CIRCULAR

THE DIAMOND MFG. CO. P51 1100 ALTAMONT AVE. SCHENECTADY 7, N. Y.

MYSTERY MIRROR

The same magic one-way glass used in police work for secret observation of prisoners! Viewed from one side, mystery mirror gives a perfect mirror image—yet an observer on the other side **can see right through it!** Ideal for doctors, dentists, parents, clubs, offices, stores (to detect shoplifting), undertakers, etc. Dozens of uses! Sizes: 2' x 2', \$1.00; 6' x 6', \$4.00; 12' x 12', \$10.00. **ORDER BY MAIL TODAY;** send your name, and check or money order and we will ship postpaid.

H. C. PAULK, 304 Kansas Ave., Dept. M-153, Topeka, Kans.

POCKET-MITE PORTABLE

Tiny enough to slip into pocket. Features miniature parts. Uses hearing aid batteries. Long range reception. Amazing item for beginners, radio builders, and school projects. All parts. Including two electronic tubes and picture diagram. Send **\$1.00**, pay postman **\$6.99 C.O.D.** or send **\$7.99** and save postage. Print name and address. Foreign orders **\$8.99** U.S. cash.

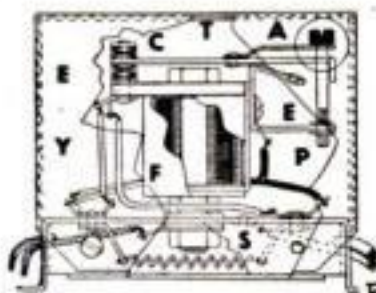


DURA-MITE PRODUCTS CO.
210 FIFTH AVE. NEW YORK 10, N. Y.

END GENERATOR REGULATOR BATTERY TROUBLE!

INSTALL TO YOUR CAR VOLTAGE REGULATOR

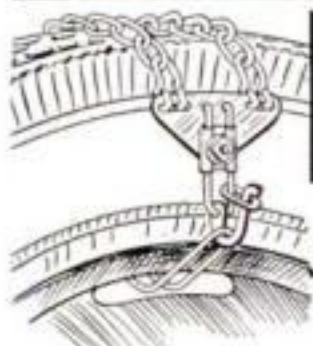
**THE AMAZING NEW-ADJUSTABLE
SELECT-A-CHARGE REGULATOR**
WITH REVOLUTIONARY NEW **DASHBOARD CONTROL**
SUMMER BATTERY PERFORMANCE THROUGH WINTER
DOUBLE YOUR BATTERY LIFE and RESERVE BATTERY — SIZE



NEW ARC-LESS — Control Circuit
Ends burning and sticking contacts.
HIGH-WATTAGE SPARK — Adds
Horse-Power to your Car Engine.
ADJUSTABLE CHARGING VOLTAGE
— To fit City Driving — Long Trips
— or Extra Heavy Winter Duty.

EMERGENCY-Drive Without Battery.

LIFE-TIME GUARANTEE — FREE BULLETIN — WRITE:
SCIENTIFIC ELECTRIC CO. P. O. BOX 2162-B CLEVELAND 8, OHIO



Kon-veen-yunt EMERGENCY TIRE CHAINS

Put On Your Tire in 10 Seconds
Gets You Out of Trouble "Quik"

Wonderful new emergency tire chains widely
used throughout the United States. Designed
for simplicity of adjustment. No buckles or
swollen straps to fuss with or break — ALL
STEEL and twice as strong as strap type.
Fits all passenger cars except Buick.
All prices F.O.B. Richmond, Va. ORDER
TODAY—SATISFACTION GUARANTEED. Mail
orders promptly filled.
Send check or money order **only \$5.98**
with this ad. PLEASE indicate tire size.
KON-VEEN-YUNT TIRE CHAINS
1406 A Cherokee Rd. Richmond 25, Va.

**SATISFACTION
GUARANTEED**

FUN TO DO . . . PROFITABLE TOO!

LEATHERCRAFT

Textile Painting • Shellcraft
Beadcraft • Metal Tooling
Lamp Shade Making

Other Crafts Complete supplies, everything you need

KIT KRAFT, Dept. 34 7373 Melrose Ave., Hollywood 46, Calif.



Send for
BIG, FREE
Catalog Today!

EASY TO LEARN CODE

Learn or increase speed with an Instructograph
—the Radio-Telegraph Code Teacher that takes
the place of an operator-instructor and enables
anyone to master code without further assist-
ance. Available tapes from beginners alphabet
to typical messages on all subjects. Speed
range 5 to 40 WPM. Always ready—no QRM.
Thousands have "acquired the code" with the
Instructograph System. Write today for conven-
ient rental and purchase plans.

INSTRUCTOGRAPH COMPANY
4701-P Sheridan Road, Chicago 40, Illinois

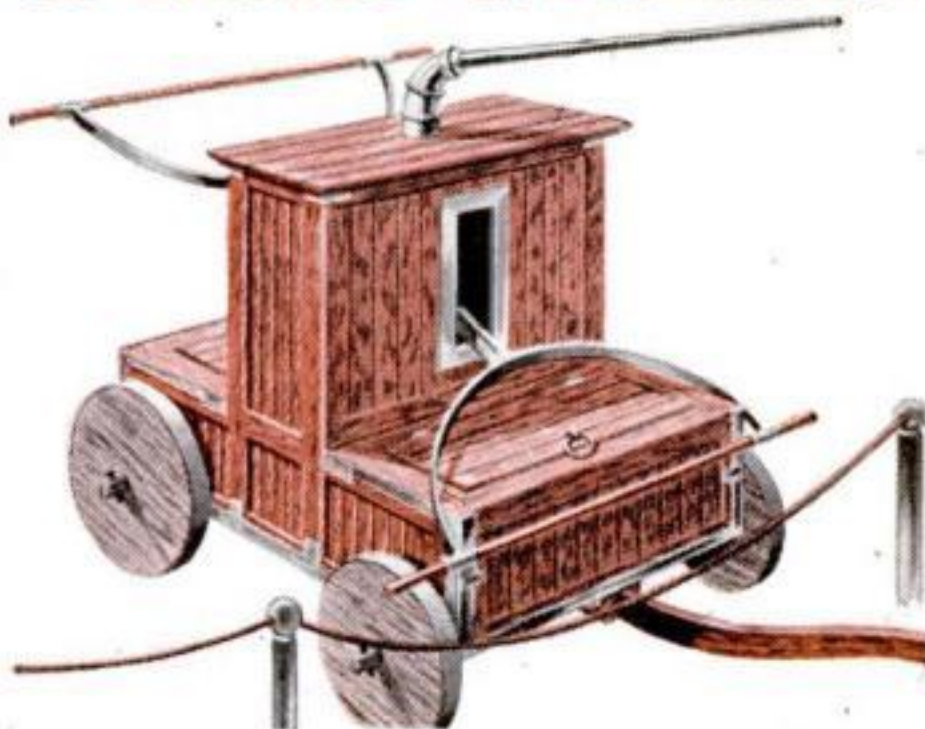


Housework Easy Without Nagging Backache

Nagging backache, loss of pep and energy, headaches
and dizziness may be due to slowdown of kidney function.
Doctors say good kidney function is very important to
good health. When some everyday condition, such as stress
and strain, causes this important function to slow down,
many folks suffer nagging backache—feel miserable. Minor
bladder irritations due to cold or wrong diet may cause
getting up nights or frequent passages.

Don't neglect your kidneys if these conditions bother you.
Try Doan's Pills—a mild diuretic. Used successfully by mil-
lions for over 50 years. It's amazing how many times Doan's
give happy relief from these discomforts—help the 15 miles of
kidney tubes and filters flush out waste. Get Doan's Pills today!

First American FIRE PUMP



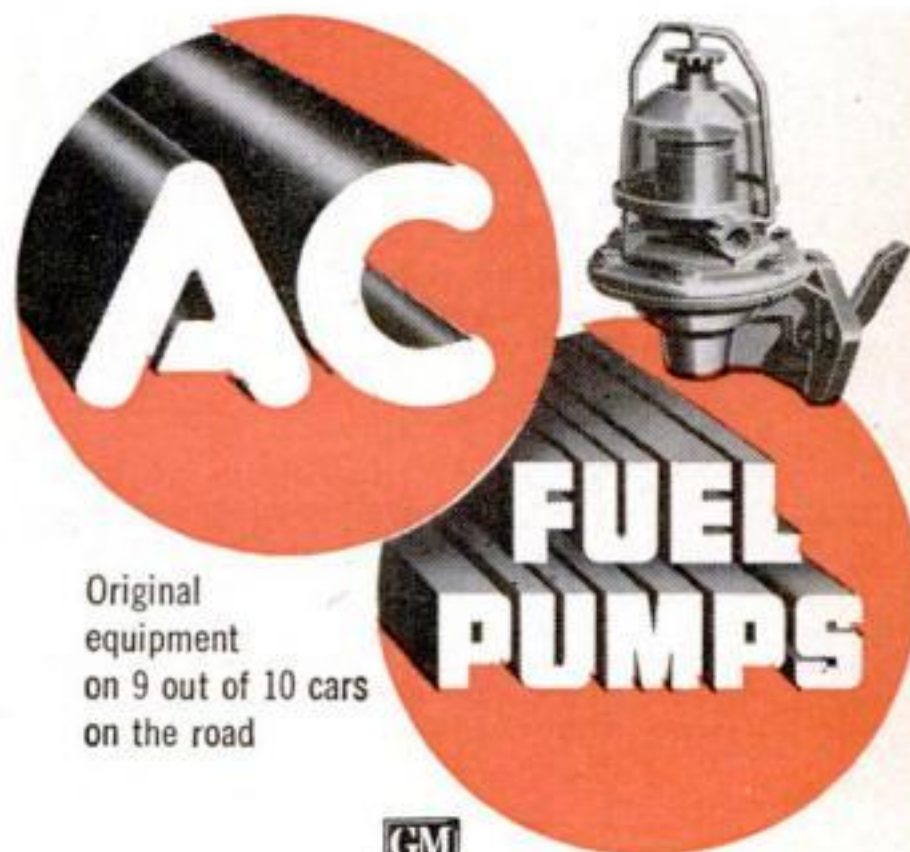
Early American fire pumpers of this type (mid
18th century) were a step forward, because they
enabled volunteer firemen to throw water on
fires from a safe distance—but they still relied
on bucket brigades to keep their "tubs" filled.

AC—America's First and Finest Fuel Pump

Just as the invention of fire pumps provided a
more effective means of fighting fires—so AC,
the original Fuel Pump, brought new efficiency
to automotive fuel systems.

Today—as in every year since 1927—ACs are
the first choice of manufacturers and owners
alike. That's why 9 out of 10 cars and trucks
now in use are equipped with AC Fuel Pumps.

Your fuel pump is so vital you can't afford to
gamble when it is worn and old. Prevent the
annoyance of an expensive breakdown on the
road—install a new AC now!



AC SPARK PLUG DIVISION  GENERAL MOTORS CORPORATION

MARCH 1953 65



YOUR HIGH-PAYING interesting career in TELEVISION starts here!

HOME STUDY COURSE

with one of America's LARGEST schools

There's a place for YOU in the tremendous, billion-dollar Television, Radio & Electronics industry! It's so easy to get started with the famous CRESCENT SCHOOL course. Learn in your spare time . . . illustrated, simplified lessons and kits to practice on. No previous training needed. Send for FREE sample lesson . . . make this day the day you started on your way to a brilliant career!

Complete parts kits included. Build your own TV SET!



APPROVED FOR KOREAN VETS

Also day & eve. classes trained at our school

SEND COUPON TODAY!

CRESCENT SCHOOL

Dept. A3

500 Pacific Street, Bklyn. 17, N. Y.

Sirs: Rush your FREE sample lesson and full details about the CRESCENT SCHOOL Course—at no obligation to me! Home Study Course ☐ Residential Course ☐

NAME _____

ADDRESS _____

CITY _____ ZONE _____ STATE _____

"TOOK IN \$217 FIRST 10 DAYS"

Some make more, some less...

We help you to start Your Own All-Year Business

Make Big Money! With our easily operated, highly efficient wall washer, Chas. Stelle took in \$217 gross in first ten days. E. L. Goss took in more than \$10,000 in one year. E. C. Taber wrote, "I made \$400 gross in two weeks." And no wonder—this machine washes walls 6 times faster and better than by hand.



Your Money-making Opportunity. We want more men to go into this profitable business for themselves and enjoy independence. Customers everywhere—homes, offices, schools, churches, hotels, etc. What you take in is mostly profit. No need to rent shop or office; operate business from home.

Lose no time. Get all facts without obligation

FREE BOOK! MAIL COUPON TODAY!

VON SCHRADER MFG. CO.

5113 "W" Pl., Racine, Wisconsin

Send at once (no obligation) your FREE booklet containing information about your WALL WASHING MACHINE and how I can start my own permanent, profitable business.

Name _____

Address _____

City _____

Zone _____

State _____

SENSATIONAL OPTICAL BARGAINS

IMPORTED MICROSCOPE—100, 200, 300 Power

1 Ocular, 3 Objective Lenses,
Rack & Pinion Focusing

Revolving disc-light adjustable mirror. Square stage 2 3/4" x 2 3/8". Truly a wonderful bargain. TRY IT FOR TEN DAYS—If not completely satisfied, your money refunded. Comes packed in sturdy, hard-wood case.

Stock No. 70,008-N. \$14.95 Postpaid

SLIDE PROJECTOR SETS Consists of all unmounted lenses you need to make the following size projectors:

Stock #4029-N—35 mm. \$2.85 Postpaid

Stock #4038-N—2 1/4" x 2 1/4" \$3.35 Postpaid

SIMPLE LENS KITS—Include plainly written, illustrated booklet showing how you can build lots of optical items. Use these lenses in photography and for dozens of other uses in experimental optics, building TELESCOPES, low power Microscopes, etc.

Stock #2-N—10 lenses \$ 1.00 postpaid

Stock #5-N—45 lenses 5.00 postpaid

Stock #10-N—80 lenses 10.00 postpaid

Order By Stock No.
Send check or M.O.

We Have Literally Millions of War Surplus Lenses and Prisms for Sale at Bargain Prices. Also numerous Types of Instruments including low price, imported microscopes. Write for FREE CATALOG-N.

EDMUND SCIENTIFIC CORP., Barrington, N. J.



DON'T LET YOUR BATTERY DIE!

Amazing "New Life" rejuvenator added to battery liquid stops build-up of plate sulfates . . . cause of 98% of battery failures. MAKES RECHARGING UNNECESSARY!

No more run-down battery worries. Use radio and accessories all you like. Give your car fast starting zip. Life of battery extended many months. Only one treatment needed. Guaranteed harmless. Money back warranty! Rush \$1.00 to:



J.S.M. PRODUCTS CO., 1118 Castleton Rd., Cleveland Hts. 21, O.

Broken or Loose FALSE PLATE?



Fix it Yourself EASILY in a Few Minutes

Your plates may become broken or loose just when you need them most. With FIX-IT-KIT you can repair your own broken plates. Also tightens loose fitting plates, easily. Get permanent comfort with professional material. Complete instructions. Satisfaction guaranteed or your money refunded. Order Now at a new low price only \$2.98 postpaid—or sent C.O.D.

Make Plates Like New DENT FIX DENTAL PRODUCTS Dept. PS-3 P.O. Box 674 Kansas City 8, Missouri

Quick, EASY Way to REPRODUCE any Object

Make exact duplicates of trays, lamp bases, medals, figurines, vases, etc. right at home overnight! New RUBBER MOLD method needs no heat-curing. No special skill or tools required. Make perfect reproductions of objects of clay, plasteline, wood, metal, glass in any quantity! Cost will be only few cents. Send for Brochure 52 which gives exact step-by-step instructions anyone can understand and follow. Send 10c for it today to

SCULPTURE HOUSE, 304 West 42nd Street, New York 18, N. Y.



INSURED TIRE SERVICE POPULAR BRANDS

SPECIAL!
Deduct
10% on
orders for
Two or
More used
tires

FREE INSURANCE POLICY given with each used tire sold. We guarantee the amount of service you pay for.

YOU CAN'T
LOSE!!

Tube Given Free with Each Used Passenger Tire Upon Request

Super Quality — Rugged Performance — 15 Months Insured Service			
600x16	\$4.55	670x15	\$5.25
650x15	4.95	670x16	5.35
650x16	5.45	700x15	5.40
		700x16	5.55
		710x15	5.45
		760x15	5.95
		760x16	\$6.35
		820x15	6.45
		550x17	4.75

Supreme Quality. Nothing Finer — 30 Months Insured Service			
450x20	5.95	450x21	6.25
600x16	5.65	650x15	5.75
650x16	5.85	670x15	5.95
700x16	7.75	700x15	5.75
750x16	12.5	710x15	6.50
550x17	5.75	760x15	6.95
525x18	5.45	820x15	7.50
640x15	5.75	475x19	5.75
		700x15(6)	10.45
		600x20	10.95
		650x20	11.75
		700x20	12.50
		32x6(8)	11.95
		32x6(10)	12.75
		750x20	14.50
		825x20	21.50
		750x16(8)	15.95
		900x20	19.95
		1000x20	20.45
		1100x20	26.75
		1000x22	19.50
		1100x22	24.75
		1200x20	23.50
		1100x24	22.75

MIDLAND
TIRE SALES

Speedy shipments on Mail Orders. F.O.B. Chicago. Insurance Policy sent with each order. Deduct 10% on orders for 2 or more used tires. Send CHECK or MONEY ORDER. No COD's. 1141 W. Randolph St., Dept. 55-5, Chicago 7, Ill.

From **ONE SOURCE-**
the Ready-Made **MATERIALS,**
the **TESTED PLANS** and the
GUARANTEED BACKING
to give **YOU-**

**ONE
THOUSAND
GOLDEN
OPPORTUNITIES**

A GRAND OPPORTUNITY!

We offer men and women everywhere what we believe, and thousands of sincere and enthusiastic customers have verified, is the greatest and most generous proposition ever made to ambitious people in the U.S.A.! It's like receiving an inheritance or being remembered in your rich Uncle's will! What we have to offer is worth a fortune to any person with a little vision, a little ambition and an earnest desire to establish themselves in a wonderfully fascinating and profitable business of their own!

MAKE BEAUTIFUL THINGS BY CASTING!

1. Our Catalog 19 is also an instruction book for it illustrates and describes hundreds of wonderful things you can make **WITHOUT TOOLS OR MACHINERY** right at home! The **PLASTICAST PROCESS OF CASTING** is as easy as pouring water out of a glass! We show you how to make the most beautiful imbedded jewelry you have ever seen... *there is nothing else like it!* Also desk pensets, paper-weights, fishing lures, pistol grips, lamps, keychains, enchanted gardens, imbedded photos, souvenirs, ash trays, book ends, novelties, curios and many other unique items too numerous to mention! We show you how to permanently preserve flowers, butterflies, insects, photos, items for display and curios in crystal clear transparent plastic!

MAKE PRECIOUS GEMS!

2. We show you how to make precious-like artificial gems of such exquisite beauty you will hardly believe your eyes! Devoting your time to this one item alone could make you wealthy... yet we have dozens more! Liquid Marble, Liquid Ivory, Porcelain, etc.

UNBREAKABLE CERAMICS!

3. We teach you how to make an endless variety of attractive, useful things out of **CERAMIC!** We have one of the largest **ORIGINAL** selections of molds in the country! Figurines, statues, planters, mugs, ashtrays, salt & peppers, novelties, etc. We have a special **UNBREAKABLE CLAY** that can be hardened in your kitchen oven!

GADGETS, MODELS, INVENTIONS!

4. We show you how to make gadgets and models and how to develop your own pet ideas and inventions... how to bring your ideas out to market in any quantity, and all it costs to get started is less than the price of a pair of shoes!

WE WILL START YOU IN BUSINESS!

5. We will start you in a 4-way business (manufacturing, retailing, teaching, etc.), supply you with beautifully packaged uncompetitive merchandise ready to sell and give you a written sales guarantee!

PROFITABLE HOBBIES!

6. For those who are hobby minded and want to turn their interesting hobbies into profitable ventures we have dozens of **NEW CRAFTS** and kits for making saleable products out of wood, felt, leather, wire, wax, plastics, metal, etc. We also have instruction kits in Silk Screen Printing, Growing Dwarf Trees, Glass Blowing, Etching, etc.

IT ALL ADDS UP...

7. Lack of space prevents descriptions of the many interesting things and plans we have but all in all, it adds up to a **THOUSAND GOLDEN OPPORTUNITIES** for you! And all it costs to get started is only 25c... yes, just send 25c for our big 56 page catalog and without extra cost or obligation we will send along other booklets and details of the greatest offer ever to come your way! **Send for it today...** this might be the lucky coin that will start the most fascinating and profitable venture of your life!



Here is some of the literature waiting for you. Be sure to send 25c for our very unusual catalog (No. 19 or 20) and discover a new, fascinating world of pleasure and profits!

PLASTICAST COMPANY (Dept. A)
P.O. Box 6737 P.O. Box 987
Chicago 80, Ill. Palo Alto, Calif.

CANADIAN CUSTOMERS: Send 35c for catalog to Canadian Ind. PLASTICS, 1056 1/2 W. Pender St., Vancouver, B. C.



POCKET-PAL PORTABLE TINY PACKAGE OF ELECTRONIC MAGIC!

- ★ Fits in your shirt pocket
- ★ Only 2 inches wide, 5 inches tall
- ★ Covers the standard broadcast band
- ★ Plays as you walk along anywhere
- ★ Uses personal hearing-aid earphone
- ★ Unique built-in ferri-loop antenna
- ★ Powerful miniature low-drain tubes
- ★ Selective 25 mile daytime reception
- ★ 1,500 mile reception in night tests
- ★ New long-life mercuric "A" battery

POCKET-PAL is not a toy or gadget with dangling wires or silly clips to attach, but a **REAL PORTABLE** for indoor or outdoor use. This unique set features attractive metal case, variable condenser tuning, volume control with switch, fibre chassis with spring copper battery contacts and many expensive precision parts. Set can be assembled by anyone, using clear **PICTURE PLANS**, in an evening. Complete prefabricated kit, including all tubes, **ONLY \$9.95** postpaid. Midget batteries \$1.75 per set. Use any earphone or hearing-aid unit furnished at wholesale cost. **POCKET-PAL** is **GUARANTEED TO DELIGHT YOU** or prompt refund. Order with confidence direct from **WORLD'S LARGEST MANUFACTURER** of prefabricated miniature radios.



\$9.95

ELECTRONIC MINIATURES, Beaverdam, Virginia

FREE

How to repair broken windows



Repair broken windows yourself. Learn how. Free Picture book tells all. Write for Free copy while limited printing lasts.

MAIL THIS HANDY-COUPON RIGHT AWAY

Red Devil Tools, Irvington 11, N. J.
Please send Free copy of Booklet HT-233

NAME _____

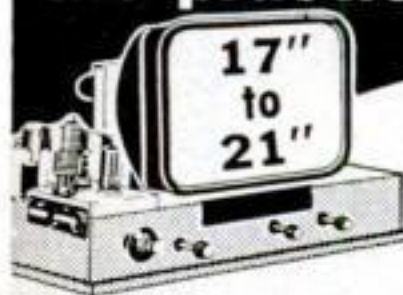
ADDRESS _____

CITY _____

STATE _____

Let me show you how EASY it is to **LEARN TV** the practical way--

D. Gnessin,
Educational
Director



ASSEMBLE A **TRANSVISION TV KIT**

Pay as You Wire **\$39**

I WILL HELP YOU to start learning TV the *practical* way — by assembling a **TRANSVISION TV KIT** in EASY STAGES. For only \$39 you get **PACKAGE #1** (standard first pkg. for all of our kits). This package gives you the **BASIC CHASSIS** and over 450 TV COMPONENTS with complete *Instructions, Drawings, Photos, Service Booklet*, and a year's subscription to my *"TV and Electronics Notes"*. When ready, you order the next stage (pkg. #2), etc. Low prices make your complete kit a terrific buy!

FREE CATALOG describes 6 great new Transvision TV Kits.

Write today to D. GNESSIN, EDUCATIONAL DIRECTOR, at:
TRANSVISION, INC., Dept. PS, NEW ROCHELLE, N. Y.

Only **OLD TIMERS** Offer Nostalgic Realism



1903
CADILLAC

Length 7" Kit with instructions \$2.50

The original "Old Timers" Antique Automobiles reveal the true-to-life qualities so demanded by discriminating collectors of Americana.

The ultimate in nostalgic realism is captured by the builder with these authentic prefabricated kits.

"Old Timers" Antique Auto kits are sold at leading Hobby, Toy and Department stores, or order direct—add 25c for postage and handling. Write for free color catalog containing fifteen additional models.

OLD TIMERS



1914 **STUTZ BEARCAT**

Kit with instructions \$3.95
Length 10 1/2"



1911 **MAXWELL**

Kit with instructions \$2.50
Length 7 1/2"

SCRANTON HOBBY CENTER

Dept. C28, 315 Adams Ave., Scranton 10, Pa.

Sensational Device Tests Eyes



SAVE up to \$15.00 on Glasses!
Big news to the millions of Spectacle Wearers and Prospects. Means Freedom from Outrageous Prices. Sold on Money-back Guarantee.

MAKE BIG MONEY QUICK—FREE SAMPLE KIT!
Show it to friends and others. Let them use it Free and watch their amazement over this Self Testing system. Here is a great new opportunity in a tremendous new field of unlimited possibilities. Spare or full time. No experience needed. Write for Free sample kit.
C. G. Optical Co., Dept. A-163, 20 E. Delaware Pl., Chicago 11, Ill

Make **BIG MONEY!**



RAISE CHIN-CHINS

PURE BRED, PEDIGREED, PROLIFIC
CASH MARKETS SUPPLIED for your Production. Pleasant—Easy—Full or Part-Time.
Learn HOW these year-round money-makers can produce **REAL PROFITS** for you!
FREE illustrated Booklet — **WRITE TODAY!**
ROCK HILL RANCH, Sellersville 41, PA.

WORLD'S LARGEST BREEDER OF CHINCHILLA RABBITS

TWO-IN-ONE **50 POWER MICROSCOPE**

10 POWER TELESCOPE \$4.95

The mos. use. ul optical instrument you ever saw! Examine fine fabrics, stamps, minerals brilliantly fifty times enlarged! Unscrew reflection cup, pull out inner tube and see distant objects come into sharp focus, *magnified ten times!* Micro-Telescope consists of eyepiece, objective and erecting system, with outer surfaces coated, in satin-finish chrome extension barrel—designed and manufactured by Japan's highly skilled optical experts.

SPIRATONE, 49 W. 27 St., N.Y. 1, N.Y.



POCKET
SIZE

REMOTE CONTROL FOR YOUR TV SET FITS ANY MAKE OR MODEL



Make added profits installing remotes for others. Complete control from any place in room *Off-on *Fine Tuning *Volume *Picture *Channel Selector—All Electronic.

FREE CATALOG with order lists all mfrs. parts and prices, or we can supply separate, in kit form or assembled.

Complete Instructions, Schematics & Parts List \$1.00.

**Television Remote Control Co., Dept. R1
820 N. Fairfax Avenue, Los Angeles 46, Calif.**

\$2.95 EACH OR 2 FOR \$5.00!



Upright Telephone complete with cord in Tested and Guaranteed condition. For Inter-communication or extension. Complete list of telephone parts, inter-communication sets, switchboards, handsets, magneto and dial telephones, etc. Write for list.
F.O.B. Simpson, Pa. C.O.D. Shipments accepted.

TELEPHONE ENGINEERING CO.

DEPT. 3.

SIMPSON, PA.



Thousands
In Use

SMALL! POWERFUL!

America's finest low cost tractor. Ruggedly built. Easy to operate. No belts, no chains. Borg-Warner clutch, trans. and diff. 140 to 1 reduction. 40% more drawbar pull than ordinary tractors. 8-1/4 H.P. engine—gasoline or kerosene. 20 quick change implements.

Write for complete details.

**ENGINEERING PRODUCTS CO.
915-A-3 NIAGARA CT.,
WAUKESHA, WIS.**

**ECONOMY
TRACTOR**

Be an Expert

...and earn an expert's pay!

LOOK around you! Who are the men that are drawing the TOP pay? It's the EXPERTS—men with a special skill or trade or "know-how." Why don't YOU become an expert in your field? Learn right at home, in spare time, the famous I.C.S. way. Choice of 391 profitable subjects... in Engineering, Chemistry, Electricity, Art, Business, Radio and TV, Architecture, etc. 203 instructors. COSTS ONLY A FEW CENTS A DAY.



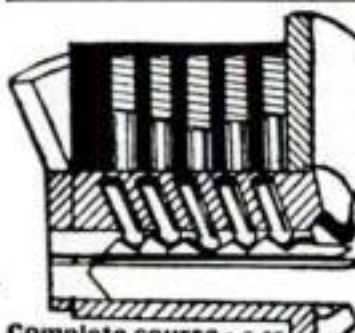
2 FREE BOOKS. Write for free book; state subject that interests you. Also free, "How to Succeed," 38 pages of valuable tips on How To Pick Your Goal, How To Develop Hidden Talents, etc. Just send your name, address. No obligation. International Correspondence Schools, Box 7635-N, Scranton 9, Penna.



NEW! EXCITING! JET EXHAUST CUT-OUT

Now your car can sound off those exciting, dynamic tones—easily controlled mechanically from your dashboard. Channel your exhaust through special pipes or muffler without removing your original muffler. Easily installed. **MONEY BACK GUARANTEE**

Send \$4.95 check, cash, money order (postpaid) or C.O.D. plus postage to:
FUR SALES, 1031 E. 63rd St., Chicago 37, Ill., Dept. PS
DEALER INQUIRIES INVITED



Locksmithing AND KEY MAKING

Now Made Easy! Practical up-to-date course teaches you how to pick locks, de-code, make master keys, repair, install, service, etc. New self-instruction lesson for every handyman, homeowner, carpenter, mechanic, service station operator, fix-it shop, hardware dealer, gunsmith. 53 easy illustrated lessons. Full price only \$4.95, postpaid; or C.O.D. plus postage. Satisfaction or refund guaranteed.

Complete course \$4.95
... now only \$3.95
Nelson-Hall Co., Dept. CX-1
210 S. Clinton St., Chicago 6, Ill.

Weights less than 1 lb.!

HIP POCKET GYM

Skinny? Build yourself up! Fat? Reduce—turn fat to muscle! Helps body build itself. Simple—Easy! Women—even children can use it. No nailing on walls—no crawling on floors! A few minutes a day rids you of "tired, run-down feeling". Builds health in Veterans Hospitals. Made of pure natural rubber. Light, compact—take it wherever you go! **5 Day Money Back Guarantee PLUS FREE Health & Strength Instructions.**

MAJOR LEAGUE SUPPLIERS, DEPT. PS4, 160 GREENE ST., N. Y. 12, N. Y.

NO TANKS USED
NEW SIMPLIFIED METHOD
SUCCESS IN THE
ELECTROPLATING
BUSINESS



ELECTROPLATE

ANY OBJECT IN HOME, SHOP, GARAGE OR START
YOUR OWN WELL PAYING ELECTROPLATING BUSINESS

NOW, using NEW plating kit, it's easy to electroplate any object. Complete kit and instructions on plating metal and non-metal objects, with nickel, copper, silver, gold, etc., plus full data on obtaining all the business you desire and make **BIG MONEY** full or spare time. **ONLY \$4.95.** **SEND NO MONEY**—everything sent COD plus postage—OR send \$4.95 now and receive it postpaid. Money back in 7 days if not satisfied.

M. Z. NATIONAL SALES CO., 113-H West 42 St., N. Y. 18, N. Y.

RUPTURED?

Get Relief This Proven Way

Why try to worry along with trusses that gouge your flesh—press heavily on hips and spine—enlarge opening—fail to hold rupture? You need the Cluthe. No leg-straps or cutting belts. Automatic adjustable pad holds at real opening—follows every body movement with instant increased support in case of strain. Cannot slip whether at work or play. Light. Waterproof. Can be worn in bath. Send for amazing **FREE** book, "Advice To Ruptured" and details of liberal truthful 60-day trial offer. Also endorsements from grateful users in your neighborhood. Write:

CLUTHE SONS, Dept. 14, Bloomfield, New Jersey.

NEW 1953 BOAT KITS BY U-MAK-IT

30 Models 8 TO 23 FEET

21 FT. OUTBOARD AND INBOARD CABIN CRUISERS

Roomy cabin sleeps 2. Includes full size toilet room, galley, sink & ice chest.

New



18 FT. OUTBOARD AND INBOARD CABIN CRUISERS

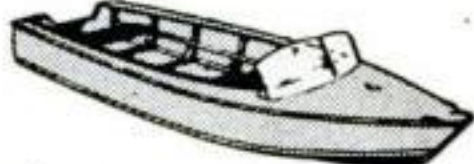
Fast Vee bottom hull, speeds up to 25 M.P.H. Accommodations for 2.

New



ROWBOATS OUTBOARDS INBOARDS

8 to 14 Ft. 12 to 21 Ft. 16 to 23 Ft.



NEW 1953 CATALOG

44 PAGES, shows construction details. Incl. everything to build your own—hardware, engines, conversions, paint & color chart.

SEND 35¢ COIN TODAY

U-MAK-IT PRODUCTS

703R - WHITTIER ST.
Bronx 59, N. Y. City

KIT BOAT OWNERS



Protect your boat with Fiberglas. Makes new & used boats permanently watertight. — Lengthens lifetime, strengthens construction, increases value & safety.

SEND 10¢ postage for illustrated booklet

EVER GLASTING

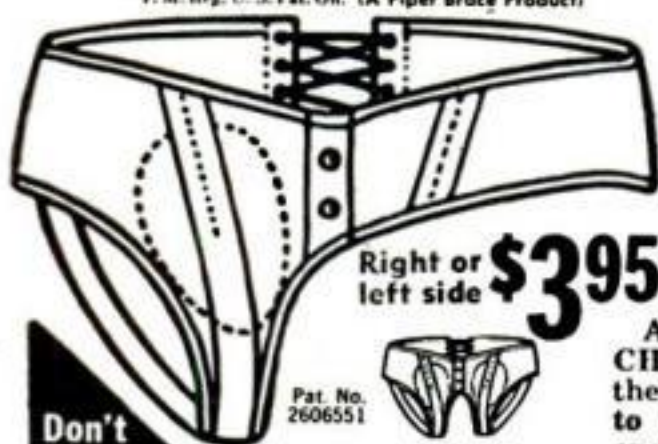
703R - WHITTIER ST.
BRONX 59, N. Y. CITY

NOW! Get Amazing New Comfort And Relief With Patented

T. M. Reg. U. S. Pat. Off. (A Piper Brace Product)

RUPTURE-EASER

NO FITTING REQUIRED



Right or left side **\$3.95**

Pat. No. 2606551



Double....\$4.95

A strong, form fitting, washable support. Back lacing adjustable. Snaps up in front. Adjustable leg strap. Soft, flat groin pad. No steel or leather bands. Unexcelled for comfort. Also used as after operation support. For **MEN, WOMEN and CHILDREN**. Mail orders give measure around the lowest part of the abdomen and state right or left side or double. (Note: Be sure to give both size and side when ordering.) We prepay postage except on C.O.D.'s.

Over 500,000 Satisfied Users!

10 Day Trial Offer—Money back guarantee if you don't get blessed relief.

Piper Brace Company — Dept. PS-33 — 811 Wyandotte — Kansas City 5, Mo.

Don't Delay! ORDER NOW!

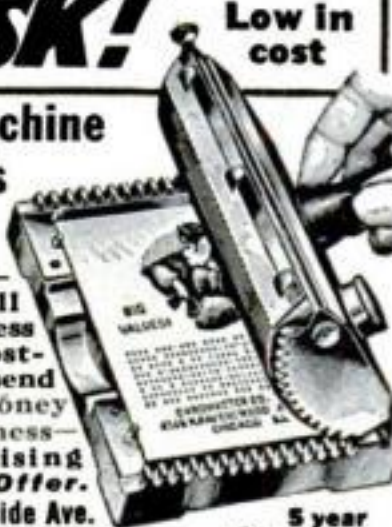
TRY 30 DAYS AT OUR RISK!

Low in cost

New Advertising Machine Prints and Illustrates Gov't Post Cards

FREE

Send name—learn how all types of business are boosting sales with Post-card Advertising. We'll also send **FREE** illustrated book of money making ideas for your business—complete, unique advertising plans—and **30-day Trial Offer**. **CARDMASTER CO., 1920 Sunnyside Ave. Dept. 163 CHICAGO 40, ILLINOIS**



5 year Guarantee

NEWLY INVENTED ADDING MACHINE

DIALS like a PHONE

A MIDGET IN SIZE. A GIANT IN PERFORMANCE.

• Fast • Accurate • Dials the Answer • Adds and Subtracts Up to a Million • A Ruler • Flat • No Moving Parts • Fits into Pocket or Purse • Fully Guaranteed • Nothing to Learn • Start Using Right Away!



Mail Mart, PS-33, 27 E. 22 St., N. Y.

Easy to Carry

RESTORE BRILLIANCE TO DIM TV PICTURE TUBES

Easy to Install! No Soldering! Just Plug In!



Don't throw away your dim, fading picture tube. **PIC-BOOST** restores to full brilliance. Makes tubes last years longer. Thousands in use. Works on any size or type picture tube. Money back guarantee. If your dealer can't supply **PIC-BOOST**, order direct. Include make and model number of your set. **8.95**

C-B-C ELECTRONICS CO., INC., Dept. MS 1310 CALLOWHILL ST., PHILA. 23, PA.



MEN! TRAIN NOW FOR A BIG PAY FUTURE IN DIESEL & SCIENTIFIC MOTOR TUNE-UP

- Diesel Construction
- Diesel Engine Repairman
- Diesel Operator
- Industrial Maintenance
- Auto Engine Rebuilding
- Bus & Truck Maintenance

Be a Trained Diesel Man

Go places with **DIESEL**! Farms, factories and power plants, trains, ships, trucks, busses all use **DIESEL POWER**... all need **DIESEL-trained men**! You can start your **DIESEL** training at home, in spare time, with tested, proved **U E I** training. Course includes practical work on Diesel engines under skilled instructors. You learn the operation, maintenance, servicing of all types of Diesel engines, **PLUS Scientific Motor Tune-up**.

ACT NOW! If you have mechanical ability, **you'll like Diesel!** High School diploma not necessary. Write now for **FREE** book, "EARNING POWER IN DIESEL." Act Today!

MAIL NOW FOR FREE BOOK!

UTILITIES ENGINEERING INSTITUTE, Dept. DM-20 2521 Sheffield Ave., Chicago 14, Ill. (Founded 1927)

O. K.! Rush, without obligation, **FREE** Book on **DIESEL**.

NAME _____

ADDRESS _____

CITY _____ ZONE _____ STATE _____

☐ Check here for information if under 17.

Be a

FROGMAN



Join the new **NATIONAL FROGMAN CLUB** today! Send \$1.00 with your name and address to the club headquarters. Here is what you will get:

1. **FREE COUPONS** totalling \$1.00 in value which can be used toward the purchase of official Frogman equipment, redeemable in your local sporting goods store or department.
2. A miniature rubber replica of a pair of **FROG FEET** water flippers for your key chain, lapel or windshield.
3. Attractive membership card certifying you are a **FROGMAN**.
4. A **FROGMAN** decal.
5. A booklet on "How to Swim Underwater" and "The Supreme Sport of Spearfishing."
6. Complete catalog of **FROGMAN** equipment.
7. Periodic newspapers for a year of club news, pictures and articles about **FROGMAN** activities, equipment and instruction.

Send your \$1.00 **TODAY!**

NATIONAL FROGMAN CLUB

Dept. PS3
1428 S. Maple Avenue
Los Angeles 15, California
Gentlemen: Attached is \$1.00 in cash, check or money order. Enroll me in the **NATIONAL FROGMAN CLUB** and send me the items above.

Name _____

Address _____

City _____ State _____

NOW . . . Get That EXTRA Mileage
... With Plain TAP WATER!



A sensation for years . . . now the NEW Hydro Power Injector gives you MORE power . . . saves you more on gas than ever before!

NEW AND IMPROVED

Yes, up to 25% more power . . . 15% less gas! That's the report on this improved wonder that lets

your car burn water! Get greater efficiency . . . faster acceleration . . .

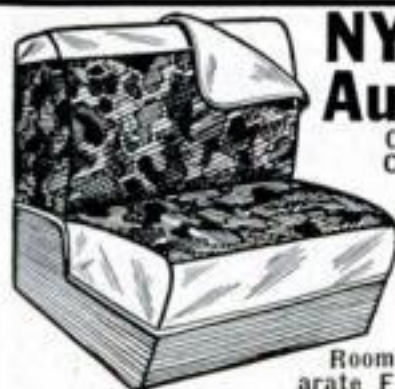
Save dollars every time you drive!

ORDER TODAY

If you drive for business or pleasure . . . Model T or trailer truck . . . the Hydro Power Injector is going to give you an entirely new driving thrill . . . and cut your operating costs! Get all the details NOW! \$15.00 ppd. Truck or large car model \$17.50 ppd. Specify whether single or double throat carburetor. RUSH YOUR ORDER!

ZUMBACH MOTOR COMPANY

Dept. PS-3 — 127 W. 53rd Street, New York City



NYLON Reversible Auto Seat Covers

Coated NYLON Seat Covers That Can Be Used On Either Side. Forest Green Effect On One Side—Two toned Foliage Effect On The Reverse. Waterproof—Cleaned with A Damp Cloth. Heavy Grade NYLON will resist Rough Treatment. Side Vinyl Panels To Cover Front and Sides of Seat. Separate

Roomy Cover For Back of Seat And Separate Full Panel To Fit Snugly Over Seat.

Proper For Tailor Fit. Simple installation—No Tacks or Nails Needed. Guaranteed to Fit your car or Money Back within TEN DAYS. Specify Type of Car and Seats Desired. Split or Solid Front Seat ONLY \$3.98. Full Rear Seat ONLY \$3.98. Enclose Payment For Prepaid Delivery, or Send C.O.D.

MARDO SALES CORP. Dept. NY-362

Room 1115 480 Lexington Ave. New York 17, N. Y.

Catalog of 3000 Novelties 10c

Send 10c for amazing catalog of novelties, live animals, scientific supplies, hobbies, funmakers, planes & boats, looms, magic tricks, joke articles, unusual seeds, gadget timesavers, cameras, optical goods, projectors, movies, lucky jewelry, religious novelties, disguises, musical instruments, stamps, coins, puzzles, fortune tellers, radios, auto & bike accessories, telescopes, magnifiers, compasses, banks, smokers' gadgets, artists' supplies, printing sets, engines, motors, shockers, knives, billfolds, fireworks, guns, rifles, sports, books, games, plants, etc. Send name, address & 10c to: **JOHNSON SMITH & CO., Dept. 654** Detroit 7, Michigan

FOR ALL TRUSS WEARERS
FREE TRUSS PAD EASERS!

Here's wonderful news for all truss wearers. In order to introduce the new Active Man Truss Pad Easer—we will send every truss wearer who answers this advertisement a sample pad easer *absolutely free*. There are no strings to this offer, no obligation on your part—not a single penny to pay either now or later. These remarkable new pad easers provide a soft buoyant air cushion that fits under any truss pad—gives you increased comfort, reduces irritation and greatly improves the holding power and safety of your truss. Prove this to yourself—by writing today for your **FREE Active Man Truss Pad Easer**. Only one to a person.

Active Man Truss Company

Dept. PS-3

549 W. Randolph St., Chicago, Ill.



1 1/2" x 3 3/8" x 5 3/8"

MEN—WOMEN!

Paint it with Suede

SPRAY ON RAINBOW COLORS

for PROFIT and Pleasure..



Flok-Kraft Covers:
 Plaster, Fabric,
 Wood, Metal, Plastic,
 Rubber—any surface!

A SENSATIONAL NEW HOME BUSINESS!

A NEW INDUSTRY...

A NEW MIRACLE FINISH!!

MAKE \$500 to \$1000 PER HOUR and more!

Read What Others Say About Flok-Kraft

"... pleased with your course and I'm being swamped with work to do." W.F., Pa.

"Got \$52.50 for those 7 trunk interiors for about 4 hours work. \$7.50 per trunk." J.O., Mo.

"Received the flok-kraft outfit and everyone that saw it is very enthused. I only had it about thirty minutes and got an order for a hundred dollar job." Mr. C. H. Maryland.

PROFESSIONAL SECRETS CAN BE YOURS
 At last, secrets of this amazing miracle finish can be yours! Huge profits waiting to be tapped in tremendous new field. Flok-Kraft gives a velvety, luxurious surface to radios, lamps, toys, signs, store displays, figurines, auto dash boards—a thousand and one items to be seen on every hand easily and quickly beautified, enriched, increased in value with Flok-Kraft. Make old objects beautiful—saleable, make new things worth much more with this soft, rich covering that can be applied to any surface, even if old or worn.

YOU CAN LEARN IN A FEW DAYS
 Make to \$5.00—yes! even \$10.00 and more per hour. Fully detailed Flok-Kraft instructions—complete and easy to understand—every point explained—shows you how to start on the road to big money, full or spare time.

WE FURNISH EVERYTHING YOU NEED TO START
 You also get complete Flok-Kraft kit of materials and equipment that enables you to start at once. Add to your income from your regular job or begin to build a successful business of your own and do it all, right in a corner of your basement, garage, service porch, kitchen or living-room.

GRASP THIS LIFETIME OPPORTUNITY TODAY
 I'll arrange to send you the complete outfit—everything you need to start—for leisurely, no-risk examination right in your own home. You owe it to yourself to investigate. Fill out and mail the coupon below for **FREE** details, Sample, Plan, etc. Do it today! Everything I send you now is **FREE** of charge and post-paid. Airmail is faster.

YOURS TO EXAMINE WITHOUT RISK!!

Complete instructions, starting kit of materials, equipment—complete, full details on how you can start your own business, spare or full time—**EVERYTHING** sent you to **EXAMINE AT OUR RISK!**

FLOK-KRAFT and DEFENSE
 Flok-Kraft offers a way to big, extra money, assisting defense manufacturers in many lines as well as filling a big demand on the home front.

NELS IRWIN
 Director of Instruction

FREE! Booklet, Sample, Plan!



COAST INDUSTRIES, Dept. 13
 1004 S. Los Angeles St.
 Los Angeles 15, Calif.

SEND NO MONEY! JUST YOUR NAME AND ADDRESS

Gentlemen: Please rush me **FREE** details, sample, etc., I understand that everything you send is free and that I'll be under no obligation now or ever.

NAME _____ STREET _____ CITY _____ STATE _____

FREE TO MEN

Reprint of 6-page illustrated article from *Vue* magazine entitled

"HOW TO GROW HAIR IN 20 MINUTES"

The subject of this amazing article is Miss Patricia Stenz who, for nearly 20 years, has been promoting the growth of hair so successfully that she now operates 3 jam-packed clinics in Los Angeles, and has a mail order clientele throughout the U.S. and many foreign countries.

Miss Stenz does not claim to grow hair in 20 minutes. The story, titled by *Vue* Magazine editors, deals with her demonstration — made many times, for many people — that even entirely "bald" heads often have considerable live hair, completely grown over by membranous tissues, which ordinary scalp treatments do not penetrate. Microphotographs in the *Vue* article show that when this tissue is penetrated by a 20-minute Stenz treatment, hair may appear dramatically over a considerable portion of the formerly bare scalp.

Other publications, too, have carried feature articles on the Stenz Hair Clinics — *Time* Magazine, *New Liberty*, *Everybody's Digest*, and newspapers coast to coast. Famous motion picture stars, including Dick Powell and James Stewart, are among those who enthusiastically credit her with saving their hair.

FREE DETAILS and No-Risk Trial Offer

Miss Stenz will be glad to send you a reprint of the article from *Vue* Magazine — also a detailed explanation of her whole startling theory regarding the cause and relief of baldness, and a history-making offer to let you TRY HER HOME TREATMENT WITHOUT RISKING A CENT! Write for full information today, without obligation.

PATRICIA STENZ Hair and Scalp Clinic, Dept. 63
1493 North Vine Street, Hollywood 28, Calif.

IN ALL STAGES OF BALDNESS



FREE! Send NO MONEY

BUILD A \$15,000 A YEAR FUTURE!



IN THE EXCITING NEW BUSINESS OF LAUNDERING VENETIAN BLINDS

There is big money to be made cleaning Venetian Blinds and a permanent, fast growing Lifetime Business, besides. An amazing new kind of business of your own in a field that is growing like mad. Millions of Venetian Blinds need laundering at regular intervals.

With our new patented machine, you can start small — using your basement, garage or utility room to begin with. You can expand as your business increases by leaps and bounds. Income up to \$200.00 daily already being made by others. Small investment for equipment starts your own lifetime business — and monthly payment plan permits you to pay for it as you grow.

FREE

Get all the facts about this sensational new kind of machine that launders blinds so fast that your charges are unbelievably low. People would rather send blinds to you than do the work themselves. Yet, you make 700% profit on every blind you clean. Get names of successful owners near you. Get details of the full amazing plan without obligation. Be first in your territory to start a business that has brought \$15,000 PROFITS the first year to others. Wire today or send name on postcard.

VENETIAN BLIND LAUNDRY EQUIPMENT CO. INC.
442 N. SENECA ST. DEPT. 12-C WICHITA 12, KANSAS

BUILD IT yourself!

... FROM 42.50—FULL PRICE!

• Enjoy building your own boat. It's EASY... it's FUN, you save half or more! Cal-Kit "Home-Assembly" boat parts are factory pre-cut. Anyone can build a Cal-Kit Boat, without special tools. Send 10c for Brochures on complete line, and nearest dealer.

Laminated Fiberglass... all weather boat protection optional. Also available for any boat.



12 FT. SKIFF KIT, 79.50



12 FT. SPORTSMAN KIT, 139.50



CALIFORNIA KIT BOAT CO.
2306 E. 38th Street • Dept. 110 • Los Angeles 58, Calif.

STOP MAKING MISTAKES IN... ENGLISH!

Is your English holding you back? You can make more money, win new friends, gain greater confidence — through BETTER English. Free 32-page booklet tells how you can become a more dynamic conversationalist, writer, and speaker without going back to school. New, easy method takes only 15 minutes a day. Costs little. For FREE booklet, send a card or letter. No obligation. No salesman will call.

CAREER INSTITUTE, Dept. 203, 41 E. Pearson St., Chicago 11



ILLUSTRATED COMIC BOOKLETS

THE KIND MEN LIKE!
THE GIRLS LIKE IT TOO!!
(VEST POCKET SIZE)

They are loaded with rare cartoons. Full of Fun and Humor. **20 DIFFERENT** booklets sent for \$1 in sealed wrapper. No C.O.D. Box 382-K., G.P.O., N.Y.C. 1

BULCO, Dept. 531,

BATTERIES START A FACTORY AT HOME



—and re-cast junk batteries into new, with and without new materials; the latest achievement. We supply complete instructions and everything needed. Large daily profits.

BATTERY LABORATORY SCHOOL
DEPT. PSM, MINNEAPOLIS 4, MINNESOTA

FREE—Amazing Book on RHEUMATISM, ARTHRITIS

If you suffer the aches, pains and discomforts of Rheumatism, as manifested in ARTHRITIS, NEURITIS, SCIATICA or LUMBAGO, send today for the FREE Book. It reveals important facts about why drugs and medicine give only temporary relief without removing causes. Explains fully a proven, specialized system of treatment that may save you years of distress. No obligation. Write for this FREE Book today!

BALL CLINIC, Dept. 36, Excelsior Springs, Mo.

TREASURE! URANIUM!

GEIGER COUNTERS—METAL DETECTORS

GEIGER COUNTERS for Uranium. METAL DETECTORS for gold, silver and buried treasure. 5 models from which to choose. We have one in your price range. No finer instruments available anywhere. FREE ILLUSTRATED FOLDERS.



THE Detectron CO. Model DG-7

5631 CAHUENGA, NO. HOLLYWOOD, CALIF.

not everyone
does as well, but
E. O. Lockin,
who started a
business of his
own, reports...

for 12 months I've averaged \$800 PER MONTH INCOME —most of it clear profit for me!



• Mr. Lockin expresses his grateful thanks for the opportunity to make a decent living on his own. Many men have discovered how to be independent, to be freed of bosses and layoffs—to build their own future on a steady, dependable foundation. L. A. Eagles grossed more than \$200 his first week. R. E. Traynor says, "I made \$62 gross in one day." Others report gross from \$100 per week to \$12,000 per year.

How much you make depends largely on you. You need no special skill, no large investment to start.

No shop necessary. Our ELECTRIC RUG WASHER cleans rugs and carpets like new right on the floor...removes dirt and grime and helps to show their natural color and beauty. So efficient and safe for carpets, it is used by largest hotels and railroads.

You take no risk. Machines fully guaranteed. Mail coupon today for complete information including how to start making big profits quickly in YOUR OWN business. BIG opportunity. Send coupon now.

You, too, can start your own business. No special skill, no large investment required. Costs nothing to find out—no obligation. Mail coupon today for interesting **FREE** book.

.....
• **VON SCHRADER MFG. CO.,**

• 5113 "R" PL, Racine, Wisconsin

• Send at once (no obligation) your **FREE** booklet containing information about your
• **ELECTRIC RUG WASHER** and how I can start my
• own permanent, profitable business.

• Name _____

• Address _____

• City _____ Zone _____ State _____
•

VON SCHRADER MFG. CO., RACINE, WIS.

TURN THIS

INTO THIS



**WITH
2-Way
Chrome
Protection**

AT LAST! A CHROME RESTORER THAT WORKS!

Now keep your bumpers, grillwork, window-frames, all chrome on your car sparkling bright as the day you bought it! Keep it rust-free for life! No matter how badly pitted or scarred, this sensational new 2-Way Chrome Protector wipes it Mirror-Bright, prevents new rust and corrosion from forming!

ONE APPLICATION LASTS ENTIRE SEASON—gives you safe, foolproof protection against vicious biting erosions of **SALT AIR—SUN—RAIN—SLEET**—etc. **101 USES**—for fishing reels, boat trims, bicycles, sporting equipment, etc.

RESULTS ABSOLUTELY GUARANTEED OR MONEY BACK! Enclose \$2, check or money order with your name and address.

H. Sears Industries, Inc., Dept. C-425, 799 Broadway, New York 3, N. Y.

Amazing new 2-way chrome protector wipes away rust—pits—corrosion—in just 2 minutes! Stops rust from forming! Keeps chrome mirror-bright!

Complete Chrome Protector Kit Containing:

- 1—Bottle of **RUST REMOVER** chemical with special applicator. Enough to remove all rust from car.
- 2—Can of **PROTECTOR** chrome rust preventer and applicator. Enough for years of safe protection.

**ONLY
\$2**

EARN BIG MONEY!

GROW "LIVING" MIDGET TREES!

AT HOME — SPARE TIME — NO EXPERIENCE NEEDED!

It's new! Amazing! At last, the secret of growing miniature (MING) trees can be yours. **FULL GROWN**, dwarf trees—only a few inches high. Beautiful miniature fir, orange, oak, Chinese elm, peach, pine, cypress—any kind! All **BLOOM** and even **BEAR FRUIT**. All perfect healthy specimens—but miniature in size! Make costly home decorations and expensive centerpieces. (**SOLD FOR OVER \$1,500 EACH.**) Big demand. Costs only pennies—takes only minutes per week. **IT'S EASY! Fun!** A new fascinating hobby—a new fabulous \$\$\$ business. Send for free secret plan details and real seed.

HELP US FILL HUGE DEMAND

These trees are being demanded by **STORES • CLUBS • HOTELS**
FLORISTS
HOUSEWIVES •
INTERIOR
DECORATORS •
COLLECTORS
HOBBYISTS—
Big Money Opportunity for you.

CYPRESS TREE



JUNIPER TREE



FIR TREE



**HOW TO LEARN
GROWING
SECRETS**

**\$ BOTH
FREE SEED**

**MAIL TODAY FOR FREE
SEED AND PLAN!**

NATIONAL NURSERY GARDENS, Dept. N3
8463 South Van Ness, Inglewood 4, California
Rush me **FREE PLAN** and **SEED** **IMMEDIATELY!**

Name _____

Address _____ Zone _____

City _____ State _____

MARCH 1953 73

Get into BUSINESS for Yourself!

METALIZING BABY SHOES AT HOME IN SPARE TIME



Get facts about amazing money-making Warner Success Plan that shows you every easy step in completely charted path to personal independence—with your home as your headquarters... This proved and tested Plan is working like magic. It's backed by an old, reliable company... And we send it to you on a No-Risk Trial Money Back Guarantee.

QUICK CASH WAITING

Demand for METALIZED Baby Shoes and other keepsakes is growing bigger daily. Our Tested Plan Shows How to Do the Work, How to Bring in the Business, How to Make as much as \$5 an Hour. Spare or full time, big steady profits are waiting for you. Send postcard or mail coupon for FREE Facts. Act NOW! Time is precious.

FREE
offer of
COMPLETE
MONEY
MAKING
PLAN
•
SEND NO
MONEY
Just Mail
COUPON

Ray Brandell, Mgr., Warner Electric Co.,
1512 JARVIS AVE., DEPT. 23, CHICAGO 26, ILL.

Please rush complete details about your No-Risk Trial Money Back Plan for Metalizing Baby Shoes. Everything you send is FREE and costs me nothing—now or ever.

NAME _____

ADDRESS _____

CITY _____ ZONE _____ STATE _____

STUDY AT HOME LAW FREE BOOK!



Prepare for the Bar!

Write today for a copy of our FREE book, "The Law-Trained Man," which gives the bar rules in your state and tells how ambitious men and women since 1890 have been preparing at home in spare time for the practice of law by studying the famous Blackstone bar-training course. All needed instruction material is furnished including big 16-volume law library. Law diploma awarded. Moderate tuition; easy monthly terms. Write for FREE book today!

BLACKSTONE SCHOOL OF LAW
225 N. Michigan Ave., Dept. 123, Chicago 1, Illinois

MAKE EXTRA MONEY

PLASTICS

LEARN AT HOME

LEARN HOW TO MAKE fast-selling PLASTIC NOVELTIES FURNITURE JEWELRY



There are RICH OPPORTUNITIES for MEN and WOMEN with "know-how" in Plastics. Interstate's new Plastics course tells and shows how to make hundreds of fast selling items out of Plastics. Gives complete training in fabrication, casting, lamination, molding, internal carving, etc., in simple, easy, step-by-step language and pictures. Plastics and Fabricating Kits for 23 valuable Plastic items come with training at no extra cost. START A PLASTICS BUSINESS OF YOUR OWN. No other industry holds such promise for the future. You can make big money manufacturing novelties, toys, signs, etc., in your own home in spare or full time. Don't wait! Learn NOW how Interstate's Plastics Training qualifies you for success in the Plastics field.

PLASTICS AND SUPPLIES FURNISHED FOR 23 VALUABLE PROJECTS

INTERSTATE TRAINING SERVICE

Dept. C2C

Portland 13, Oregon

\$750 BUILDS 4 ROOMS & BATH!

WHY PAY RENT?



For Seven Hundred Fifty Dollars and 30 days of your spare time, you can build yourself this Beautiful Home.

Living room, 11x15, Front bedroom 9x11, Back bedroom 10x12, Kitchen 9x11, Bath 5x8, Hall 3x4. Windout steel casement windows. Concrete block, stuccoed. Illustrated pictures, step by step instructions, blueprint and material list. \$1.00. Money back guarantee. L. H. FARROW, Dept. D Box 645 Columbus 16, Ohio

SENSATIONAL SALE 25c, Hundreds of Genuine Stamps



1. KOREA, rare temple set obtained by a GI at the scene of the Kaesong Conference.
2. COLLECTION of over 300 different genuine stamps. Includes new San Marino "Columbus" set. Sports, Airmails, unique Spain Civil War "submarine" stamp which is missing in almost every collection, Indonesia, Vatican, Israel, Roosevelt stamp, etc.
3. YEMEN—Scarce stamp honoring the Universal Postal Union. Stamps from this Arabian Kingdom are rarely seen.

ALL THREE LOTS—326 different genuine stamps—(Reg. value \$3.98) only 25c to introduce our bargain approvals to you.

NATIONAL STAMP SALES, DEPT. AT, 832 8th Ave., New York 19, N.Y.



You can play the GUITAR!

COWBOY-FOLKSONG STYLE

IN TEN EASY LESSONS WITH MY NEW, AMAZING, SIMPLE METHOD. KNOWLEDGE OF MUSIC IS NOT NECESSARY. IMAGINE YOURSELF PLAYING "HOME ON THE RANGE" IN JUST A FEW HAPPY HOURS OF PRACTICE. ONLY \$1.00 (ADD 10¢ FOR POSTAGE) ... SEND TO

PIERCE GUITAR METHODS-5812 MARKET ST. SAN DIEGO 14, CALIF.

Special Offer

WORK CLOTHES BARGAINS!



FREE 10 DAY TRIAL



WORK SHIRTS

79¢

3 for \$2.29

Blue, Tan, White Measure Neck & Arm



WORK PANTS

99¢

3 for 2.69

Blue, Tan, White Measure Waist & Leg



SHOP COATS

\$1.79

3 for \$5

Blue, Tan, White Send Chest Measure



COVER ALLS

\$1.98

3 for \$5.49

Blue, Tan, White Send Chest Measure

WHAT A BUY! Surplus stock from a big midwest supply firm makes these gigantic savings available to you! Sturdy, serviceable work clothes, though used, have been washed, thoroughly sterilized and reconditioned. Every garment made of long-wearing wash materials, strongly sewn, with reinforced stitching at points of strain. When ordering please state measurements under item.

SEND NO MONEY! Just send name, complete address, clothing desired (state how many of each), and your color choice (also 2nd color choice). We will ship immediately. Pay postman, plus postage when your order arrives. Or, enclose cash, check or money order, and We Pay Postage. Keep 10 days. Return for full refund of purchase price if not completely satisfied. Order TODAY at our risk!

YOUNG DISTRIBUTING CO. Dept. 1223 2605 Elmhurst, Detroit 6, Mich.

Classified Ads only 80c per word per insertion, payable in advance. Minimum ad 10 words. To be included in May issue, copy should be in our office by March 24. No cancellations accepted after March 15.

CLASSIFIED OPPORTUNITIES

POPULAR SCIENCE MONTHLY-351 FOURTH AVE.-NEW YORK CITY 10

1 AUTOMOBILES & MIDGET CARS

SAVE—California Custom Accessories headquarters. Buy direct from original designers. Chrome dash panels, electric push button door-trunk conversions, fender skirts, dual mufflers, lowering kits, speed-dress up equipment. 40 page catalog. Hundreds of photos—25c. Eastern Auto, 3319D South Grand, Los Angeles 7, Calif.

FREE: Club Newspaper sent free. Gane Economy Club, San Gabriel, California.

HI-Mileage-Speed equipment from the world's largest supplier. Also dual manifolds, finned heads, electric trunks, doors, lowering sets, chrome panels, thousands of items for all cars. 1953 catalog 25c (illustrated literature free). Wholesale to garages. Newhouse Automotive Industries, Los Angeles 22.

MYSTERY auto won't run off table. \$1.50 postpaid. Heydeco, 2730 Gravois, St. Louis, Missouri.

POWERCAR Junior—Real Children's Auto! See details under "Motorcycles-Bicycles."

FREE Motor Magazines; Automobile Literature, old, new and foreign; glossy photos, dealer books, shop manuals—offered with non-profit organization. Write today; get on free mailing list. Auto Maniacs, Inc., Stockbridge, Michigan.

MAKE your own foreign car body. Polyester-Fiberglass. New Catalog. Instructions, wholesale prices. 10c. Airmailed—25c. Gem-O'-Lite, Box 6862K, North Hollywood, Calif.

RUSH Your \$1. refundable registration deposit for Life Membership Giant Car Owners Cooperative to the Great, National Gane Economy Club, San Gabriel, Calif.

100 WAYS to save money buying your car. Smarse, 1819 Hills Avenue, Tampa, Fla.

2 AUTO SUPPLIES & EQUIPMENT

NEW and used guaranteed parts for civilian and Army cars and trucks. Largest stock in America. Mail orders. Pioneer Auto & Truck Parts Company, 788 W. 13th Avenue, Denver, Colorado.

BRUSH Plating Outfits connect to a battery. No tanks or shop required. Free particulars. Gunmetal Co., Ave. K, Decatur, Illinois.

HEADLIGHT Guards. Stops stones. Rims and woven wire chromed. Hinged for cleaning headlights. Fits seal beam equipped cars also MG-TD's, Jaguars. \$6.95 pair. Dobard Products, P. O. Box 5194-PS, Detroit 35, Michigan.

WEBER Degree Plates. Easy to time and check Cam Shafts. Maximum engine performance. \$9.95. Weber, 4200 White-side, Los Angeles, Calif.

MOTORISTS, Truck Owners, Hot Rod & Sport Car Enthusiasts—Here's what you've been looking for... largest and Most Complete Automotive Parts & Accessories Catalog in America. 1953 Edition—132 pages (illustrated) shows all parts, from a cotter pin to a complete motor, and accessories for all makes, all years, all models, cars & trucks. Pages and pages for Hot Rod & Sport Car enthusiast. Hollywood accessories to give your car individual styling. 50,000 items listed at Savings up to 50%. Don't miss it! Send 25c Now (refundable). J. C. Whitney & Co., 1919-ET Archer, Chicago 16.

HI-Ball rethreading of "U" bolts. Instructions now 25c. George Stadel, 1079 Finlayson, Victoria, B.C., Canada.

"BUY Speed equipment without money." No selling. Information free. Newhouse Industries, Los Angeles 22.

DETAILS. World's Handiest Automobile Accessory. Wennerstrom, Box 69-S, Auburn, Mass.

GLEAMFIRE Safety Strip Bumper Warning—glows red. 5 feet \$1.39 Prepaid. Honest Charley Speed Shop, Box PS-3086, Chattanooga, Tenn.

COMBINATION spot and trouble lite housed in modern telephone. Ten feet coiled kord, chrome hanger and switch. \$7.50 check. M.O. or C.O.D. Carr-Lite, 2252 Coit, Grand Rapids, Michigan.

REPLACE worn and wasteful carburetor idling screws with Aero Jets. Better idling, faster pick-up, easier starting, get up to four miles more per gallon. \$1.50 each. (8 cylinder cars use two). 10 days free trial. Advanced Automotive Products, Webster, New York.

INCREASE! Gasoline mileage Three to Five more miles per gallon. Guaranteed Gasoline Vaporizer, also Increases Power. Easier starting. \$3.50. Turb-O-Vane, Stockton, Calif.

LIGHT your Dynaflo Dial, kit \$1.50; Powerglide kit \$1.50. M. Gaiser, Box 25K, Kokomo, Indiana.

MoS2 LUBRICANT protects moving parts. Write Molyplate, Box 303, Palo Alto, California.

LACHAPPELLE'S Treatment. (Patented.) National International Distributor. Ferns Products, 8120-D Walnut Dr., Los Angeles 1, Calif. Puts Babbitt bearings on the pistons for \$3.00. Free Data.

"HELL'S Bells" for automobiles. Provoke attention. Amazement. Laughter. Free literature. "Winco's," Box 9525, Dallas, Texas.

REMANUFACTURED Motors \$75.00 up, exchange or outright. Auto Parts Service, West Salem, Ohio.

FIBER Glass Insulating Blanket under hood arrests engine noises. Easily installed. Complete kit \$3.95. Hoodpak, Box 844, Augusta 1, Georgia.

SAVE 50%. New Channels and Regulators. All cars and trucks. 1928 up. Box 1962, Waco, Texas.

ELECTROPLATE autoparts, novelties, mirrors. Easy, inexpensive home processes. Free booklet. Tyco Metals, Box 13231-PC, Houston 19, Texas.

STOP burning oil, piston slap. Seal in compression. Enjoy new smooth power. price \$2.95. Butler's Vitapower, Box 101, Willow-Creek, Calif.

SMOKEY cars need Fishers compression seal, \$3.95 postpaid. 8's need 2 tubes. Send 25c for wholesale, retail catalogue. Honest Charley Speed Shop, Box PS-3086, Chattanooga, Tenn.

VACUMITE car vacuum cleaner \$3.98. Request interesting details. William Wern, 333 N. Michigan, Chicago 1, Illinois.

ELIMINATE Hazardous Glare and Costly Fading. Spray beautiful green or blue plastic Color Glaze on Windshield or Picture Windows. 12 oz. aerosol can \$2.98 Postpaid. Mar-beaux Plastic Co., Box 201, St. Louis 3, Missouri.

"WATER Injection". Free descriptive, illustrated information. Neher Industries, LaVerne 6, California.

CAR burning oil? Losing compression? Try Clifford's Compression Seal. \$2 Postpaid. Clifford's, 1329 Seventh, Aurora, Ill.

CHEVROLET Owners: Guaranteed valve silencers \$2.95 postpaid. Easily installed. Hud's Sales, Box 575, Batesville, Arkansas.

HYDRAULIC jack repair kits. Repair your own. Send for prices. Jack Parts Company, 2000A South Claiborne, New Orleans, La.

LACHAPPELLE'S Treatment. Agent's distribution warehouse, Dillon, Box 323, Bridgeport, Ohio.

GANE Economy Club News sample free. New economy auto products. Gane Economy Club, 9909-D Santa Monica Blvd., Beverly Hills, Calif.

MOTORIST save gasoline by Vacuumating overrich mixtures. Fits all cars. For Free particulars write Vacuumatic, Dept. 2003, Wauwatosa, Wisconsin.

CHEVROLET Owners: Stop tappet noise with Kaye Tappet Silencers. Quality product. Easy to install. Complete set \$5.95. Kaye Products, P.O. Box 1423, Milwaukee, Wisconsin.

DOUBLE Action Crumbliss Super Coil permits 40 to 50 thousandths plug settings! More HP! Top Performance! Write: White's, Catawissa 4, Pa.

LACHAPPELLE'S Treatment. Canadian Distribution. Master, Box 3, Station C, Hamilton, Ontario.

ECONOMY in Driving Manual usually 50c. Learn to save gas and cut costs. Send 10c mailing cost. Mehren Industries, Box 31-B6, Beverly Hills, Calif.

"SAVE 50%"—Speed Equipment. Hollywood Mufflers, Duals, Manifolds, Cams, Chrome Accessories! "Souping Manual—Catalogue" 25c (Circular Free). Almquist Engineering, Milford 3Z, Pennsylvania.

SAVE oil, recharge battery, remove carbon, rust, etc. . . 10 valuable car formulas, only \$1.00. Chaplain, 922 7th, N. Port-Alberni, B. C., Canada.

NEWEST creation. Ram jet "kant knock off" deflector—any car—agents this is it. \$2.25 postpaid. Ram Jets Sales Ltd., Houston 21, Texas.

GM71 Discarded injector parts wanted. Hogen, 7120 Carnegie Cleveland, Ohio.

SAVE Gasoline! The amazing "Atomizer". Increased mileage up to 6 miles gallon. Easily installed. Cost \$3.00. Order today. Tell make and model car. DeSoto Engineering & Manufacturing Co., 502 School St., Clarksdale, Mississippi.

3 AUTO TRAILERS

BUILD your own trailer! Plans for all kinds. Illustrated catalog 10c. Jim Dandy, 125-S Wausau, Wisconsin.

TRAILERS. Build Yourself. Telescoping and conventional models. Slip-on Coach for Pickup Trucks. Parts catalog. Information, pictures 10c. Comstock Trailers, 585S, Parsons, Kansas.

4 MOTORCYCLES, BICYCLES AND SUPPLIES

RECONDITIONED motorcycles and motors. Chromium accessories. Complete stock Indian parts. Expert rebuilding. Fast service. Indian Motorcycle Sales, Kansas City 27, Mo.

WHIZZER motor \$8; Whizzer motor-bike \$21; two passenger midget car chassis \$75; homemade midget \$18; Indian motor \$10. Four airplane tires \$3. (mailorder only). Send 25c for Catalogue Number 52 just out listing the above and hundreds of other bargains in new and used motor-scooters, midget cars, homebuilders parts, plans, etc. (35c by first class mail.) Midget Motors Directory, Athens, Ohio.

POWERCAR Junior—Real Children's Electric Auto . . . Plenty of power for hills, towing wagons, etc. Catalog free. Mystic River Sales, Dept. Q-3, Mystic, Conn.

NSU Motorcycles, Motorbikes. 1953 NSU-Lambretta Motorscooters. Seven models (100cc-500cc). Fast parts service. Ask for folder, some Dealerships open. Butler & Smith Trading Corp., 117 West 63rd St., Dept. S, New York City.

WHIZZER \$20; Servicycle (good tires) \$20; Motorbike conversion kit \$25; Cushman motorscooter \$25; Harley twin \$25. Rush 25c (35c first class mail) for catalog #954 listing many other amazing bargains in motors, midget cars, motorscooters, motorbikes, construction plans. Associated, Box 1764-CS, Toledo, Ohio.

REBUILT Gasoline Engines, \$17.00 to \$37.00. Cauffiel Motor Industries, Temperance, Michigan.

40 RECONDITIONED Harley-Davidson Motorcycles. Large stock of Parts and Accessories for Old and Late Models, good Chromium Parts—Send 25c for Bargain sheet, Illinois Harley-Davidson Sales, 7577 W. Lake Street, River Forest, Illinois.

HARLEY-Davidsons—America's Best Used Buys! We pay shipping on motorcycles. Genuine new, used, parts, accessories for current and obsolete models. Send 25c for bulletin, catalog. Knuth's (Harley-Davidson Factory Dealer), 2491 Fond du Lac, Milwaukee, Wisconsin.

WHIZZERS \$20; Midget Car \$15; Motor-scooter belt drive \$6; 3-wheel scooter car \$39.50. Send 25c (35c first class mail) for catalog #23 jammed with sensational bargains in wheels, motors, motorscooters, midget cars, motorbikes, construction plans, etc. Gail, 538 Erie, Toledo, Ohio.

"BUZZZZZ"—The Motorcycle Magazine. Lots pictures. Worldwide Coverage. \$2.00 Year. Sample 20c. 5424-B Sawyer, Chicago 25.

5 AVIATION

PROPELLERS. Plans, Supplies, for snow sleighs, air boats. Immediate delivery. Catalog 25c. Banks-Maxwell, Box 3301G, Ft. Worth, Texas.

6 BATTERIES, GENERATORS, ETC.

EDISON Nickel odorless storage batteries. 12 to 600 ampere hour. Any voltage. Long guarantee. Literature. Hawley Smith Co., Croton Falls 2, New York.

7 ELECTRICAL SUPPLIES & EQUIPMENT

LAMPS—25c brings bargain parts catalog containing instructions for electrifying oil lamps, vases, etc. Gyro Lamps, 5402B Clark, Chicago 40.

ELECTRIC Pencil: Engraves all Metals. \$1.50. Beyer Mfg., 10511-C Springfield, Chicago 13.

FREE—War Surplus Catalog—Bargains Galore. Welders, Motors, Generators, Hydraulics, Pumps, Kits for assembling your own, other items. Save. LeJay Company, Minneapolis, Minnesota.

LAMP Supplies — Wholesale — any amounts. Prompt shipment on all parts for repairing and building lamps. Illustrated catalog 15c. Brown Specialties Co., No. 501—Wellston Sta., St. Louis 12, Mo.

FREE Surplus Catalog. New items. Lower prices. Card's Wholesale, 6221 Edgewood Drive, Niagara Falls, New York.

8 WELDING, SOLDERING

REACTORS for 200 Ampere generators. Thorndyke Mfg. Co., Box 47, Pipestone, Minn.

A.C. Welders. Four Sizes. Lowest Prices. Free Literature. Holgerson's Service, Canton, Kansas.

"LEARN Heliarc Welding." Illustrated manual shows you how to weld. Send \$1.00. Welding, P. O. Box 9, New York 57, New York.

NEW tiny soldering iron. 1/4" diameter tip for pin point accuracy. Literature. White's, Catawissa 4, Pa.

9 MACHINERY, TOOL SUPPLIES, ETC.

MOTOR driven rotary Hone sharpens all Keen Edge tools. A must for all shops. Immediate delivery. Moore Industries, Fredonia, Pennsylvania.

PREVENT Rust—Apply on metal that is exposed to the weather in grey color. Price \$2.50 per quart. Prevent Rust, Box 307, Downers Grove, Illinois.

FULL line hobby and light industrial power woodworking tools. User agent plan. Write for information. Backus Machine Co., Chippewa Falls, Wisconsin.

FOUR-wheel riding tractor 6 H.P., 12" Plow, Cultivator, etc., attachments. Also sold unassembled to save you money. Working plans available. Write Dominique Engineering Co., Maumee, Ohio.

RUST Remover—Harmless. Produces unbelievable results without effort. One quart \$1.00 PP. Money back Guarantee. Free sample and literature. Best Tools Inc., Dept. PS, Box 92, Berwyn, Illinois.

GOOD machines for your shop: 20"x8" lathe \$380.00. New 10 1/2" Bench lathe screw cutting \$200.00. Cincinnati #2 1/2" Universal Milling machine. Motor, Drive-All and Dividing heads \$1600.00. Lodge & Shiply Q.C. 25"x14" engine lathe Drive-All, motor, chuck \$1900.00. Lodge & Shiply Q.C. 16"x12" engine lathe Drive-All, motor, chuck \$940.00. Hamilton Q.C. 18x6 Drive-All taper attachment chuck \$1000.00. Lodge & Shiply Q.C. 18x12 Drive-All taper attachment 2 chucks \$1400.00. Garvin screw machine bar feed. Drive-All \$650.00. Medium size thread miller motorized \$500.00. Fellows #6 gear shaper motorized \$700.00. Smith & Mills 25" shaper motorized \$1200.00. Money back if you are not satisfied. Conversion Parts Co., 277 Adams St., Boston 22, Massachusetts.

SECOND hand bulldozers. As good as new. Manhattan Sales Co., 210 5th Avenue, New York 10, New York.

VERNIER Calipers, Height Gages, Micrometers, Dial Indicators, Surface Plates, Precision and Production Tools. Brand Tool Company, 907 S. Victory Blvd., Burbank, Calif.

SCREW gage checks threads per inch and 38 screw sizes. Free details. Faas Laboratory, 13E Dogwood Road, West Orange, New Jersey.

BARGAINS in Government Surplus Tools—Send 10 cents. Dental Specialty, Dept. FPS, Box 692, Great Neck, N. Y.

FREE! Complete catalogs of precision tools for any job. Big stocks—famous brands: Lufkin, Starrett, Brown & Sharpe. Immediate delivery. Wide selection. Write for your copy today! Mid-City Hardware & Supply Co., Dept. PS, 318 South Halsted Street, Chicago 6, Illinois.

6 PIECE screwdriver set, 5 tempered steel blades for all work (recessed screws, too.) Unbreakable handle with screw chuck. For car or home. Plastic case. Only \$1.25 postpaid. Dombroff, 8610 34th Avenue, Jackson Heights 72, New York.

HAND Torch, instant lighting! 2300° white-heat! Any position, any temperature, even 30° below. No Pumping, Priming, Spilling, Filling, Soldering, Melts, Splices, Fires wet wood! 10" long, burns 15 hours! Refill cylinders. Shipped all ready. Only \$6.95, refill \$1.95 Express "Collect." Harry Ross, 72 W. Broadway, New York City 7.

POWER tools, equipment wholesale prices. Free bulletin. Homecrafters Cooperative, Grand Rapids 6, Michigan.

10 ENGINES, MOTORS, ETC.

WINDING Data, listing 225 motors, single and three phase \$1.00. Motor Data, Box 7631, Kansas City 3, Mo.

ALTERNATING Current Generators 750 Watt \$38.50, 5000 \$135. Motors 1/2 horse \$15, 3/4 \$22, 1 \$35. Butler, 1885 Milwaukee, Chicago 47.

MOTOR winders, get our Skein Winder, rewinds A-C Motors, with instruction booklet \$4.95. Motor Industries, Quincy, Ill.

REBUILT Gasoline Engines, \$17.00 to \$37.00. Cauffiel Motor Industries, Temperance, Michigan.

11 BOATS, OUTBOARD MOTORS

FULL size, cut to shape boat patterns, blueprints, 7 1/2-38 feet. Illustrated "Build a Boat" catalog 25c (coin). "How to Build Boats" book \$1.00. Cleveland Boat Blueprint Co., Dept. A-77, Cleveland 13, Ohio.

NEW, used, rebuilt marine motors. Marine conversions, fittings. Free Catalog. Stokes Marine Supply, Dept. 23, Coldwater, Mich.

OUTBOARD Motor Parts—New—Used for all makes. Send stamp for price quotation, listing par s needed. Outboard Motor Mart, Inc., 229D State Street, Boston, Massachusetts.

NOW Faster Than Ever! Champion Boats—the choice of champions now available to you! Easy-to-read plans; easy-to-assemble kits; or easy-to-afford custom built speed boats. (18 models, outboard and inboard). Send 25c today for multi-colored, illustrated catalogue. Champion Boats, 1524 W. 15th St., Long Beach, Calif. Dept. 23-C.

GET our big 224 page 1953 Marine Hardware, Boat Kit & Equipment Catalog. Send \$1.00 for handling costs, refunded with first order. Garland Frasher Marine Sales, 540-F 31st Street, Huntington, W. Va.

SAVE 2/3 Cost. Assemble your own boat. We furnish parts. No experience necessary. Rowboats, Cruisers. Illustrated Catalog 25c. Midwest Boat Company, Menomonee Falls 1, Wisconsin.

BUILD marine engines with Federal Conversion Kits. Federal Marine Motors, 9011 Cottage Grove Ave., Chicago 19, Ill.

MARINE Conversions, manifolds, water pumps, transmissions converted reverse gears, etc., most complete line on the market. Barr Marine Products Co., 2706 E. Castor Ave., Philadelphia 34, Penna.

WE manufacture special racing inboard speedboat hardware and equipment. Big illustrated catalog 25c. Debbold's Marine Supply Co., Lynwood 8, California.

BARGAINS Galore Boat Steerers, Windshields, hundreds of items hardware and boat kits, skis. Lowest prices. Folder, Marine, Box 681, Mendota, Minnesota.

WANT A Boat? Build it yourself! Write for descriptive folder 55 easy-to-build boats. Science and Mechanics Magazine, 972 Dunham Bldg., Chicago 11, Ill.

CURE that leaking boat with Fiberglass—plastic covering. Ends caulking and painting. Nationally approved process. Complete instructions. New low prices. Industrial Plastics, 3807 Harrison, Oakland 11, California.

MARINE conversions for Ford and Jeep engines. Catalog 10c. Lehman Manufacturing Co., 972A Broad St., Newark 2, N.J.

PLANS: Inboard-outboard runabouts, cruisers, sail. Wood, plywood, welded steel. Advise requirements. John B. Clark, N.A., 329 Kenmore, Bay Village, Ohio.

PERFECT boat coating, Polyester-Fiberglass. Permanent protection. Our new catalog tells you how, and how much. 10c. Airmailed—25c. Gem-O-Lite, Box 6862J, North Hollywood, California.

12 BODY-BUILDING COURSES, JIU JITSU & ATHLETIC EQUIPMENT

BUILD Powerful Body, 30 exercises, Diet Menues, all for 50c. Ed., Box 69, Hagerstown, Maryland.

BRASS Nuckles—(alloy) \$2.00 each. Fortiter, 1729 N. Decatur Rd., Atlanta 6, Ga.

BAR Bells—Save \$—Make your own. Detailed plans. Send 50c. Box 4, Oakmont, Pa.

BARBELLS, Dumbbells, Exercise equipment. Courses. Free booklet. Good Barbell Co., Reading, Penna.

BUILD Your Own Barbell Dumbbell Set any weight \$3. Materials obtainable anywhere; complete instructions \$3. Body-Building Course free. T T Barbells, Box 631, Cleveland 7, Ohio.

13 TAXIDERMMY

MOUNT your game. Book \$1.00. Taxidermy, 3928-42 Avenue, Birmingham, Ala.

14 FIELD GLASSES, TELESCOPES

WAR Surplus Bargains, Binoculars, Telescopes, Sextants, Millions of Lenses, Prisms, Reticles, Eyepieces, Objectives, etc. Mail 10c for Big "Catalog CN." Send \$1.00 for Stock CN-10-piece Lens Kit and Big Instruction Booklet. Edmund Scientific Corp., Barrington, New Jersey.

GIANT astronomical telescope complete with 6 ft. tripod, 45x, 100x (10,000 area magnification) eyepieces and sun projector lens. Full power, clear vision guaranteed. \$15.00 f.o.b. factory. Suffolk Science Service, Dept. TC, Riverhead, New York.

"FREE Catalogue! Thousand war surplus optical bargains. Lenses, Prisms, Telescopes, Binoculars, etc. Send \$1.00 for 10 Lens Hobbyist Set and Project booklet. G. Jaegers, 691 West Merrick Road, Lynbrook, New York.

POWERFUL, giant telescopes easily made. Lenses, erector, focusing tube and instructions for making 40X, 100X, 200X and 400X telescope \$6.00. Telescopic Company, Manorville 5, N. Y.

SAVE! Save! New Binoculars! Free Catalog, Free Book, "How To Select Binoculars." Write Today! Bushnell's, 43-P63 Green, Pasadena 1, Calif.

AMAZING prices, binoculars, telescopes, microscopes. Free trial. Folder, "Binocular Selecting" optical catalog free. Prentiss Importers, Mercury Bldg., West Los Angeles 25, California.

FREE 1953 40-Page, 3 color catalog! 67 different models! United Binoculars, 9043 S. Western, Dept. A-7616, Chicago 20.

REFLECTOR telescope kits—Precision eyepieces, Mirror cells, Diagonal holders, Tubing, other optical bargains. Free illustrated bulletins. Esco Products, 1426 Willow Ave., Hoboken, New Jersey.

BINOCULAR Specialists, all makes repaired. Authorized Zeiss, Hensoldt dealer, Tele-Optics, 5514 Lawrence, Chicago 30.

BINOCULARS—Telescopes, Microscopes Terrific values \$3.95 up. Request Free-Money saving catalog, Criterion, Hartford, Conn. Dept. S8.

POWERFUL astronomical telescopes easily made. Full power clear vision guaranteed. Complete instructions and lenses for making erector, 45x, 100x, 200x and 400x telescope—\$4.00. Suffolk Science Service, Riverhead, New York.

REFLECTING Telescopes, completely assembled, 60X, \$29.75. Guaranteed Observatory clearness. Free information. Skyscope, 475 Fifth Avenue, New York 17.

BINOCULARS, lowest prices, 8x30—\$30.00. Guaranteed. Free catalog, all sizes. Joe's Binocular Sales, 4827 Second Blvd., Detroit, Michigan.

BARGAINS Imported Microscopes. Telescopes. Binoculars. Write Palomar Distributors. Dept. 3S. 2453 Beverly Blvd., Montebello, California.

ASTRONOMICAL telescopes produce inverted images. Our giant 100 power, complete, ready to use terrestrial telescope with hardwood tripod produces tremendous, clear, erect images day and night. Helioscope. Extra eyepiece. All for \$12.00 f.o.b. factory. Telescopic Company, Man-orville 5, N. Y.

15 SPORTING GOODS, GUNS, FISHING TACKLE, ARCHERY, TRAPPING

NEW 80 page Cartridge Catalog and Ammunition Reference Digest. Informative and profusely illustrated, plus new 6 page Shooter's Ammunition List, containing the largest variety of cartridges for obsolete, modern and foreign rifles, shotguns and pistols. Price 50c. Philip Jay Medicus. Dept. 2, 18 Fletcher Street, New York 38, N. Y.

120 PROFUSELY illustrated pages, antique pistols, swords, daggers, armor, etc. 50c. Robert Abels, PS860 Lexington Ave., New York 21.

SAVE on Gunsmithing. Jap Conversions. Scopes. Loading Tools. Catalog 10c. Cougar Arms Company, 587 Ferris Street, NW, Grand Rapids, Michigan.

BOWS And Arrows! Raw materials. Send 5c for catalog. Illustrated Handbook "How to Make and Shoot Archery Tackle" 75c. Stemmler Co., Dept. 1, Man-orville, L. I., New York.

FISHERMEN—make your own sinkers with our molds. Free illustrated booklet. Reading Instrument Co., Box 78, Reading, Penna.

TURTLE traps, hoop nets, other fishing tackle—request folder. Mack Flinn, Arthur City, Texas.

5,000 BARGAINS, firearms, binoculars, war relics, catalog 50c. Smith Museum, Runnemede, N. J.

PANFISH flies, poppers. Ten assorted. \$1. Prewitt, Box 1003A, Kokomo, Indiana.

OVER 500 guns, modern, obsolete. List 10c coin. Ed Howe, 26 Main, Coopers Mills, Maine.

2000 GUNS! Kentuckies, Westerns, Luger, Mausers, Sporting Arms. Expert gunsmithing, Indian Relics, Medals. Buy-Sell-Trade. Bargain catalog 50c. Ed Agramonte, 201 Warburton, Yonkers 2A, N. Y.

JAP rifles altering American shells \$6.00, catalog 5c, TP Shop, West Branch 10, Michigan.

BUY Guns, Sell Guns, foreign ammunition, knives, rifles, pistols, binoculars. Catalog 10c. Ashton, 1517 Gardner, Hollywood 49, California.

16 CAMPING EQUIPMENT & TENTS

TENTS, camping equipment, 100 page free catalogue. Mor-San Sales, 10-21G 50th Avenue, Long Island City 1, N. Y.

TENTS Sleeping bags low factory to you price. Send for pricelist. American Canvas, 652 W. Walnut, Chicago 6.

17 DOGS, BIRDS, HAMSTERS, RABBITS & PETS

MAKE Big Money! Raise Chinchilla Rabbits. Cash Markets Supplied. Write Today! Rockhill Ranch, Sellersville 16, Pa.

RAISE Mink: Free booklet, pen, plans, inside "secrets" feed, care. Mink are money makers. Investigate today. Lawrence Molgard, Brigham City 13, Utah.

YOUNG Parrots—make fine talkers. Herb Miller, 1911-N, Lubbock, Texas.

700 BRED Mink booklet pen plans 20c. Lake Ontario Mink Ranch, Gravel Road, Webster, New York.

GOLDEN Hamsters, send \$2.75 for pair of Breeders or send for folder. Everett Engle, Farmersburg, Indiana.

GUINEA Pigs. Highly profitable. Free Booklet. Taylors, B426B, Hapeville, Ga.

NATURALIST'S Catalog 10c. Chameleon 75c. Salamander 70c. 200 Mealworms \$1.20. Quivira Specialties, Topeka 10, Kans.

SALE Tame Red Squirrels. Breed. Dewey H. Balch, Castleton, Vermont.

GOLDEN Hamsters. Pedigree Stock. Breeders, Laboratory or Pet Stock Shipped express Anywhere. Price list free. Charles E. Bowser, Smoke Run, Pa. Dept. H.

RAISE Guinea Pigs. Very Profitable. Write Winfield Harrison, Fitzgerald, Ga.

BIG profit raising pet Hamsters. Free booklet. Ledfords, B685S, Gaffney, S. C.

RAISE Fishworms Backyard. Worth-while profits! Complete instructions 25c. Ozark Worm Farm-V, Willow Springs, Mo.

18 FROG RAISING

"FROG Raising." Season just starting. Small ponds starts you. New book tells how. Free folder. Broel-B, 1035 Marlborough, Detroit 15, Michigan.

FROG, Fish Raising Profitable. Information, 25c. Vol Brashears, Berryville, Ark.

19 FARMS, OTHER REAL ESTATE

FARM-Ranch Opportunities. Favorable conditions. Washington, Minnesota, Montana, Idaho, Oregon, North Dakota. Literature, farm descriptions. Specify which state. J. W. Haw, 120 Northern Pacific Ry., St. Paul 1, Minn.

FLORIDA, New Lake County development adjoining Ocala National Forest. Best fishing, hunting. Safe from bombs. Nice homesites \$245 at 10 monthly. Folder free. Winfree Vernor, DeLand, Florida.

CALIFORNIA Ranch Lands, 50c to \$5 acre minimum bid. Farm-ranch-hunt-fish-retire, 10c brings illustrated land catalog, outline maps. Tax Land Sales, Box 2350BX, Hollywood 28, Calif.

NEW Strout Catalog, just out! Farms, Homes, Businesses, 31 States, Coast-to-Coast, over 3200 bargains described. Mailed Free. World's Largest; 53 years Service. Strout Realty, 255-ZB 4th Ave., New York 10, N. Y.

NEW List Farms, Auto Courts, Homes, Missouri Ozarks. Johnson Realty-PS, Marshfield, Missouri.

\$12,000.00 FARM Home Free! Details 3c stamp. National, Box 268R2, Hopkins 3, Minnesota.

FLORIDA Highway Estates—\$395. Payable \$15 monthly. Big, beautifully wooded Tracts on U. S. Highway 231. In famous Panama City Pleasure Resort Area. World's finest beaches. Many lovely lakes. Wonderful fishing, hunting. Grow fruits, berries, vegetables, flowers. Poultry. Cheap electricity. Fine investment in desirable new Community. Free Booklet. Douglas Wood, Box 873, Houston, Texas.

5-ACRES & Independence—Book; Write for Free Photo & details: Landcraft, Dept. B2, Cole Camp, Missouri.

FLORIDA—5 acres high dry land near beaches, raise fruits and vegetables. Only \$495.00, \$10.00 down, \$10.00 month. Information write G. B. Potterfield, Owner, Union Building, Department P, Charleston, West Virginia.

SELLING comfortable houses like rent; nothing down. Perry, Briar Hill, Penna.

20 TREES, SHRUBS, ROOTS, HERBS

TREES And Shrubs—Raise your own from seed for shade, windbreak, snow fence, ornament, erosion control, etc. For free planting guide—price list, write Woodlot Seed Company, Norway 2, Mich.

21 POULTRY & SUPPLIES

RAISE Turkeys the new way. Write for free information explaining how to make up to \$3,000 in your own backyard. Address—National Turkey Institute, Dept. 57, Columbus, Kansas.

RAISE pheasants on \$100 week plan. Little capital and space can make you independent. Free details. Great Central System, Columbus 6, Kansas.

22 PROFITABLE OCCUPATIONS

DETECTIVES Earn Big Money. Excellent opportunity. Detective Particulars free. Write, Wagoner, P-125 West 86th, New York 24.

BE independent, be secure, have your own profitable business—earn \$20.00 and more a day making beautiful, fast-selling lamps at home. No equipment needed. Illustrated course teaches you quickly. Course, parts catalog, wholesale price list—only \$2. Gearon Co., Dept. 200-A3, 27 S. Desplaines, Chicago 6, Ill.

WINDOW Display Business. Write Larry Vandeman, Box 104-a, Hinsdale, Illinois.

WANT A Diesel Job? New Opportunities to increase income. Higher Pay. More Money. We can help you Qualify. Tools, Shop method home training. Write today. Diesel, Tractor, Heavy Equipment Division, Interstate Training Service, Dept. 2C, Portland 13, Oregon.

"HOW to Make Money With Home Workshop" describes amazing methods used by hundreds of successful craftsmen. Tells what to make. How to sell workshop output spare time. Write at once for details. Craftsman, 115B3, Worth Street, New York City.

\$10,800 PROFITS! Your own Mailorder Business! No Capital Risk! "Success Plan" (worth \$2) Free! Write today! Treasury, 149 Storer New Rochelle P-9, New York.

\$5000 FROM half acre growing Ginseng, crop bought, Particulars 10c. Associated Growers, Sperling, Manitoba.

BUY Wholesale thousands nationally advertised products at big discount. Free "Wholesale Plan." American Buyers, 628-T Linden, Buffalo, New York.

OWN a Collection Agency! Pays big. Many who took our home study course now have their own offices. Free booklet. Franklin Credit, Roanoke 7, Virginia.

\$40.00 WEEKLY. Make growing mushrooms. Dominion Patent 331,583. Free spawn with Order. North American, 169Y Yonge, Toronto, Canada.

WEATHERPROOF, Sunproof, Fireproof, Roof Coating, Luster-Kote, 19417 Derby, Detroit, Michigan.

FLAGPOLE and Smokestack painting. Perfect part time trades. Details free. Skyline Co., Fairchance 2, Penna.

GROW Mushrooms. Cellar, shed, and outdoors. Spare, full time, year round. We pay \$3.50 Lb. We paid Babbitt \$4,165 in few weeks. Free Book. Washington Mushroom Ind., Dept. 101, 2954 Admiral Way, Seattle, Wash.

RAISE fishworms, easy, profitable, complete instructions 25c. Huffman's, Rives Junction, Michigan.

FREE Booklet reveals amazing secrets behind 301 new, profitable enterprises! Many mailorder! Includes confidential instructions for starting wholesale buying service. Deumant Publications, 85-S Deumant, Kenmore 23, New York.

FREE Book "505 Odd, Successful Businesses." Work home! Expect "Odd"! Pacific—37C, Oceanside, Calif.

POWER Mowers—\$19.95. Home-store assembly. Extra profit. Franchise deal. Smith Agency-PM, Excelsior Springs, Mo.

START profitable mail order lumber, wood products business. No investment. Opportunities unlimited. Chas. Webster, Guttenberg, Iowa.

GENUINE Leather Wallets Easily Made. Experience—Tools unnecessary. Kit \$1.00 contains everything. Miles Crafts, 3220PS Fish Avenue, New York 69, New York.

EXTRA Money. Spin angora wool at home. Angora House, PSM, Springfield, Ill.

RAISE Ginseng. Roots bring fortunes. Free information. Fezler, Patchogue, N. Y.

"UPHOLSTERING for Profits" complete instructions, \$1.00. Custom Upholstering, Oxford, Pa.

WANTED! Intelligent investors. Raise and sell chinchillas part time. \$900 monthly possible. Guaranteed market. Colonel Richardson, Dept. 333, Crystal Lake, Manchester, New Hampshire.

23 BOOKS & MAGAZINES

ADULT Books—Illustrated Comic Booklets, 20 for \$1.00. All different. Free gift with each order. V. M. Rogers, Dept PS, Box 14738, Cimarron Station, Los Angeles 18, California.

SPARETIME Profits Taking Subscriptions. All Magazines. Wholesale Catalog Free. Cassell Agency, Westfield 1, N. J.

WHY Things Happen. Troubled about personal misfortunes—unhappy world conditions? The inspiring book, "The Divine Providence," by Emanuel Swedenborg (1688-1772) will help answer your questions. 640 pages, 25c postpaid. The Swedenborg Foundation, Section 11, 51 East 42nd Street, New York City 17.

OUTLAWS, Authentic Texas Books: "Sam Bass," "Bill Longley, Texas' Worst," "Steer Branded Murder," "The Houston Story." \$1.50 each, all four \$4.50 postpaid. Frontier Bookshop, 8102 Lockheed, Houston, Texas.

GOOD Used Books, 50c—\$1.00. Postal brings lists. Editions, Dept. PS, Hempstead, New York.

BOOKS, self help, instructional. Many mint editions, collectors items. Free list. Mutual, Section 261, Wilhoit Building, Springfield, Missouri.

ATHEIST books. Catalogue free. Truth Seeker Co., 38 Park Row, New York 8.

BOOKHUNTERS! All Subjects. Send Wants! Jaher Book Service. 620-K East 178 Street. New York 57.

BOOKHUNTERS! Scarce, unusual, miscellaneous books supplied. Atlantic Book Service, 2 Lawrence, Charlestown 29, Mass.

INTERESTING adult books—novelties—illustrated comic booklets 24—\$1.00, catalogues 10c. Kogan, 1032PS Church Annex, New York 8.

BACK-Date magazines. Specific issues; years. Arkell's. Northridge, California.

OCCULTISM. "The Mysteries." Self-Unfoldment, Yoga, Theosophy, Rosicrucianism, Freemasonry. Books. Courses. Catalog. Jordan's, 1130 Keller Avenue, Louisville 13, Kentucky.

NATIONAL Geographic Magazines 1888-1952. Any Issue. Periodical Service, Box 465-PS, Wilmington, Delaware.

HARD to find books quickly supplied. Murray Novick, 40 Arch Street, Springfield 7, Mass.

ADULT Book Bargains. Catalogue. Samples, 10c. Arkay, Box 2052, Los Angeles 53, Calif.

MAGAZINE Clippings. Large stock. Low prices. Robison's, 24 Werner Street, Daly City 7, California.

BOOKS New & Used at special prices. Save money. Write for list of fifty free catalogs on text and occupational subjects. Many rare and "out of print" titles. We Also Buy Books. Established 1902. Long's College Book Co., Dept. PS, Columbus 1, O.

MAGAZINES—All dates found. Arnold Klein, 183 Schol's, Brooklyn 6, New York.

BOOKS of every description including hobby, handicraft, novelties, adult, illustrated booklets 10—\$1.00 and gift. Catalog 10c. Rothleder, "102PS" Cathedral Station, New York 25.

FASCINATING Books—24 assorted illustrated humor booklets, \$1.00. Sparkling cartoons; illustrated catalog 10c. Aladdin Book Co., 210-PS Fifth Avenue, New York 10.

24 HYPNOTISM

HYPNOSIS and Self-Hypnosis, complete course. Free details. Columbia Company, 5864-A Hollywood Blvd., Hollywood 28, Cal.

HYPNOTIZER is the cutest trick you've ever seen. Try it; and laugh with your friends. Send card, or dollar, today; for fun! Hypnotizer, 208-D Iiniway, Aiea, Oahu, Hawaii.

FREE illustrated Hypnotism Catalogue. Write: Hypnotist, 1324 Wilshire, Hollywood 17P, California.

UNUSUAL, dynamic Self-Hypnosis Courses, lesson, "101 Amazing Feats," 25c. Lloyd Collins, Appalachia, Virginia.

25 MAGIC TRICKS, PUZZLES, ETC.

FREE magic vanisher with illustrated catalog 25c. Maj Magic Products, 23 Friends Lane, Westbury, New York.

DO Magic! Catalog and rope trick. 25c. Howard's Mystery Mart, 177 Park, New Haven, Conn.

MAGICIANS. Gamblers books, supplies exposed. Catalog 10c. Book, Box 671, St. Louis 1, Mo.

FLOATING cigarette trick. Floats in air with full instructions 25c. Eastwood, 694½ Jefferson, Chillicothe, Ohio.

FREE trick and large illustrated catalog—35c. Lerro's Magic, 8111 Fifth Avenue, Brooklyn 9, N. Y.

SEND for free Catalogue of Tricks. West Texas Fun House, Box 2929, Odessa, Texas.

MAGIC—Parlor. Stage. Joker's Supplies. Lower Prices. Giant Catalog 25c. (Refunded). Top Hat Magic, Evanston 22, Illinois.

2500 TRICK Catalogue (512-pages), pocket, parlor, stage. World's Finest Magic. Catalogue \$2.00 (dollar trick included free). Kanter's, S-1311 Walnut, Philadelphia 7

200 ELECTRIC stunts, 110 volts, \$1.00. Cutting Sons, Los Altos, California.

BE a Magician—Everything furnished—earn money—have hobby. Write. Marsh's, 237 W. 11th Avenue, Columbus, Ohio.

"JUMBO" Catalogue!!—Tricks!! Puzzles!! Funmakers!! 10c. Andersen's, 6815S Ardmore, Chicago 31.

500 TRICKS. Douglas famous 120-page Catalog, only 10c. Fastest service to magicians for 30 years. Send 10c today. Douglas Magicland, Dept. 2, Dallas, Texas.

GUARANTEED Magic Tricks! Catalog free. Newton Magic Co., Bonham 8, Texas.

VENTRILOQUIST Dummy, 34" cowboy or dude, complete course, comedy skit. Only \$14.95. Send 10c for photos and details. Stagecrafters, Box 467, Roanoke, Va.

MAGICIAN'S illustrated catalog and free trick 35c. Terry's Magic Studio, 1921—66th Street, Brooklyn 4, New York.

INTRODUCTORY offer 7 tricks novelties \$1.00. Samson, Box 31C, Dowagiac, Michigan.

26 COIN COLLECTING

GET Profit and Pleasure in collecting old coins. Send 10c for 56-page illustrated coin catalog. You'll be delighted with it. Send for it now. B. Max Mehl, 374 Mehl Building, Fort Worth, Texas. Largest rare coin establishment in U. S. Established 53 years.

FREE! Foreign coin, banknote and Coin Collectors' Illustrated Catalog to approval service applicants. Send 3c postage. Tatham Coin Co., Springfield-50, Mass.

OLD Money Wanted. Will pay \$100.00 for 1894 Dime, S. Mint, \$50.00 for 1913 Liberty Head Nickel (not Buffalo). Big premiums paid for all rare coins. Send 4c for Large Coin Folder. May mean much profit to you. Numismatic Co., Dept. 30, Fort Worth, Texas.

BUY U.S. gold coins, ingot, slugs, rare coins. All you have to sell. Send full details of coins. Marcell's, 4520 University Ave., San Diego 5, Calif.

SET nine Japanese invasion notes for U. S. \$2.00. Illustrated coin catalogue 25c. Shultz, Salt Lake 10, Utah.

COIN Magazine, 100 pages. Sample Copy 30c. Numismatic, 7320 Milwaukee, Chicago 31.

COIN Collector's greatest bargain—Huge monthly magazine and wooden nickel 10c. Lawrence Brothers, Anamosa, Ia.

BARGAINS! Rare collections Lincoln Cents in album 1909 to 1945. 100 different dates Indianhead Cents \$3.00. 15—\$1.00. \$200.00 Confederate money \$2.00. Complete Illustrated Buying—Selling Catalogue 25c. Worthycoin Corporation (D-428) Boston 8, Massachusetts.

TWO U.S. large cents, different dates, \$1. Five for \$2. Four Indianhead cents 25c. Delmaco, Box 1123B, Wilmington, Del.

27 OLD STAMPS WANTED

I Will Pay \$100.00 each for 1924 1c green Franklin stamps rotary perforated eleven (up to \$1000.00 each unused). Send 10c for Large illustrated folders showing Amazing prices paid for old stamps, coins & collections. Vernon Baker, PS-33, Elyria, Ohio.

28 STAMP COLLECTING

AMAZING Offer! 200 United States stamps—including commemoratives, airmails, high denominations to \$5.00—Only 10c to Approval Applicants!! Illustrated Bargain Lists free. Mystic Stamp Co., Dept. 55, Camden, New York.

FREE—Complete set of Famous Americans, Flags, Parks and Presidentials to approval buyers. Send 3c for 15 of the above stamps plus full particulars. Triboro Stamp Company, 145 Nassau Street, Dept. 203, New York 28, N. Y.

1,000 UNIQUE Colorful attractive mounted stamps 1c-2c each. Rushed. Niagara Stamp Co., Niagara-on-the-Lake 72, Canada.

300 STAMPS For Only 10c! This mammoth value includes Airmails, Pictorials; stamps from strange countries cataloguing up to 25c each!! Also approvals. Mystic Stamp Company, Camden 55, New York.

POLAR Bear Triangle; Giant George Washington, Six Colored Ecuador, Arctic Triangle, first American commemorative, Corsica, Devils Island, others. Everything free with approvals. Capital Stamps, Little Rock 10, Ark.

FREE Stamp Collection:—100 different stamps from Europe, Africa, Asia, Scandinavia, Balkans, etc., 3c to approval applicants. Tatham Stamp Co., Springfield 50, Massachusetts.

FREE—Illustrated Catalog! Kenmore, Milford C-58, New Hampshire.

ALBUM! Capacity over 1000 stamps! Only 10c! Stampmart, Hartford 1, Conn.

U. S. Army & Navy Heroes on Stamps; 10c with United States approvals, Locust, Box 509-a, Harmon-On-Hudson, N. Y.

200 DIFFERENT, including Roosevelt triangle. 5c to approval applicants. S. Avalon Stamp Co., Springfield, Mass.

FREE. Scott's International Album. Other big premiums. Full particulars with approvals. Raymax, 68-X Nassau St., New York 38.

FLAG Stamp—Free with hygrade U. S. approvals. Wenigman's, 1933 Patterson, Chicago 13.

312 MIXED U. S. only 10c to "Gold Nugget" approval applicants! Nothing like them. Kessel's, Folsom, California.

NUDES Set; Colorful approvals—10c! Atlas, 2830-P Eisenhower, Racine, Wisc.

200 EXOTIC Japan Stamps—10c! Kenmore, Milford K-58, New Hampshire.

WOW! 203 All Different Germany 10c! Zeppelins, Semipostals, Airmails, High values, etc. to new customers. Jamestown Stamp, Jamestown 509, New York.

WE give you—mammoth international albums, Scott's catalogues, hinges, complete accessories, when you buy our wonderful foreign approvals. Don't write unless you intend to buy. But don't buy elsewhere without comparing our more generous offers. Bargain Stamps, Santa Ana, California.

327 DIFFERENT Stamps 25c! Including Early Canada, Newfoundland, British Colonies, Vatican, Red Russia, Hitler Heads, Indian States, Animals, Airmails, French Colonies, rarities, unusuals. Every stamp different. Rare bargain only 25c with our Bargain Approvals, Money back guarantee. Niagara Stamp Co., Niagara-on-the-Lake 62, Canada.

VALUABLE Airmail book plus gorgeous world-wide airmail collection 10c. Includes \$10,000 stamp, zeppelin, scarce triangle, many others with beautifully illustrated book, only 10c with choice approvals and bargain lists. Jamestown Stamp Co., Jamestown 707, New York.

FREE! Big Illustrated Catalog listing everything for the Stamp Collector. Approvals. Harrisco, 204 Transit Bldg., Boston 17, Mass.

FREE! Powerful Magnifying Glass for 5c Post. Bargain lists and approvals. Jamestown Stamp Co., Dept. 202, Jamestown, New York.

MINT King George Coronations from 5 different British Colonies only 10c with approvals. Walter Welles, Box 1246-V, Church St. Station, New York 8.

GREAT Free Offer—Weird mosquito stamp, thrilling bicycle race, gorgeous orchid, colorful native drummer, gigantic diamond airmail, stamp albums, all to our approval buyers. Bell Stamp Service, Dept. W-4, Bell, California.

RARE octagonal stamp, giant triangle, gorgeous diamond, also mammoth and midget stamps given to foreign approval buyers. Gifts with purchase including Scott's International \$6.00 album, also latest Scott catalogues, Plymouth, Dept. A-3, Bell, California.

50 DIFFERENT U.S. 5c. Price lists included. Bookman, Maplewood 1, N. J.

FREE "Stamp Finder." Tells country to which any stamp belongs. 32 pages profusely illustrated. Garcelon, Calais 19, Me.

FREE Stamp Zoo! Rhinoceros, Snake, Giant, Pygmy, Emu, Kangaroos, Koala-bear, Kookaburra and other wild animals. Free with exciting approvals. Niagara Stamp Co., Niagara-On-the-Lake 52, Can.

65 ALL Different U.S. Stamps includes 19 Century, Commemoratives, Airmails and \$5.00 Stamp. Only 10c. Approvals. Willett Co., Box 511M, Port Chester, N. Y.

FINE Approvals. Fast, personal service. What countries do you prefer? I'll send their stamps. Milton Skinner, 438 Locust, Long Beach 12, California.

RARE bargain, \$1.25 Cat. alluring South Pacific Islands 10c with approvals. H. Offerle, 1920 Palmgrove, Los Angeles 16, California.

UNITED States Price List Free. James Cunningham, 101B Terrace, Hasbrouck Heights, New Jersey.

1000 MIXED Stamps 25c. Pound Bag \$1.00. Book Nook, Willmar 61, Minnesota.

81 MULTI-Colored Flags of the World—only 15c. Kenmore, Milford F-58, N. H.

FREE! Big United States stamp catalog—including value guide and identifier plus check list. Hundreds of illustrations. Approvals. Harrisco, Boston 17-B, Mass.

"HOW To Recognize Rare Stamps." Free Book Illustrated! Kenmore, Milford H-58, New Hampshire.

BETTER Grade U. S. or Foreign Approvals. Ocean Stamp Co., Box 64-P, Brooklyn 29, New York.

50 YEAR Old Collection—U. S. Classics, 15 Selected Old-Timers each 50 or more years old—Most of 'em missing in even the biggest collections! Get all 15 of these unusual Classics for less than 1c each. All yours for just 10c! With your request for approvals. Jaro Stamp Co., Box 246-E, Church St., Annex, New York 8.

MINT Five Pound British Colony Stamp, guaranteed genuine, face value \$25, just 25c to introduce our famous approvals. Viking, 130-PP Clinton St., Brooklyn, N.Y.

LION Triangle, elephant, 28 others, 3c. K & S, 303 Clinton, Newark, New Jersey.

333 ALL different 10c to approval applicants. Jayne, Gravesend Sta., Brooklyn 23, New York.

UNITED States approvals? Select copies, used, mint, Kingsbury, So. Woodbury, Vermont 3.

90 DIFFERENT U.S. only 30c with approvals. Faith, 1339½ Westminster, Alhambra, California.

IS Your Hobby Too Expensive? Are high prices keeping your collection on the shelf? Try our 1c and 2c foreign approvals in books of 1,000 or U. S. at bargain prices. Clark Stamp Co., Dept. U-5, Muskegon Heights, Michigan.

\$2.00 CLEARANCE Lots. Wholesale. U.S. or Foreign. Satisfaction Guaranteed. Beacon Sales, Maynard 3, Mass.

PAY less—Get More—Packets by country or subject—mammoth list free—introductory special 100 different Canada 39c. Econostamps, Box 168, Riverside 2, California.

BEAT this if you can! Over 520 different stamps, catalog over \$11, for only 25c to serious adult approval applicants. Free illustrated price list. Cosmophilatelist, Andover, New Jersey.

UNITED States Stamps! Bargains! Sullivan, 127-D East 4th, St. Paul 1, Minn.

GIGANTIC Collection Free—Includes Triangles—Early United States—Animals—Commemoratives—British Colonies—High Value Pictorials, etc. Complete Collection plus Big Illustrated Magazine all free. Send 5c for postage. Gray Stamp Company, Dept. PR, Toronto, Canada.

WOW!! 100 different Germany only 5c to approval buyers. Modern Stampco, Box 12P, Wakefield Station, New York 66.

SENSATIONAL U.S. Confederate States catalogue free. Stone, 45-S Bromfield, Boston 8, Mass.

15 DIFFERENT used United States airmails including 16c special delivery. New York Jubilee only 10c, when requesting approvals. Brighton, Box 164A Flatbush Station, Brooklyn, New York.

INVESTIGATE! Advanced collectors will really enjoy my quality worldwide approvals. References necessary. Prompt, personal service. Wm. Kuehl, 3125 East K, Tacoma 4, Washington.

GIANT American Flag stamp, nine American Occupations, many others, 5c. Approvals. Mitchell, Box 923K, Portland, Maine.

18 VALUE Greece pictorial set. Free to approval buyers. Pleasure Stamps, 1865A—52nd, Brooklyn 4, New York.

33 DIFFERENT United States—3c. Approvals. Utechts, 1143-A North Keeler, Chicago 51.

1000 FINE Mixed U.S. Stamps 25c. Wright, 201 Mealey, Hagerstown 2, Md.

50,000 STAMP Grabags 25c each. Anderson, 630a Bingham, Reading, Pa.

WORLDWIDE approvals, wonderful values. Norm's, 2418 Kensington St., Harrisburg, Pa.

EASTER flowers—Stamps that bloom! Bargain price, order soon, 10c. Scout Stamps, No. Weare, New Hampshire.

FREE Sample—Interesting informative. Illustrated! National Stamp News, Anderson, South Carolina.

FREE Bahawalpur Jubilee set to approval applicants. Lighthouse, Box 1516 Colorado Spring, Colorado.

PENNY approvals—also advanced material. "Juno", 1267 Tutwiler, Memphis 7, Tennessee.

UNITED States—40 different 10c; 40 different Commemoratives 25c. No approvals. Seidenberg, Appleton 944, Wisconsin.

150-DIFFERENT Stamps \$.05 to approval applicants. Safford, 3104 Flesher St., Dayton 10, Ohio.

MINT (Unused) United States approvals. Patrick Agencies, 3650B Central, Indianapolis 5, Indiana.

50 DIFF. Finland 10c with approvals. Carroll's, E. 1817-C Sprague, Spokane, Washington.

FREE! Abyssinia to Zanzibar packet plus 2 Monaco triangles, to new approval applicants. Moulblow, Box 278A, East Northport, New York.

TERRIFIC Collection—unsurpassed bargain! Animal stamps from Ifni, Iceland fish. Gold mining in British Guiana. Map. Coat of arms of Nyasaland. Croatian imperforate set. Red cross airmails from Spain. Beautiful flowers in natural colors, from C. C. C. C. Colombia, San Marino, etc. Triangles from many countries. Multicolored stamps of Cape Verde New, big set from Uruguay. Reproduction of first U. S. stamp. Stamps honoring landing of Columbus. All these, plus more than a hundred others, for only 50c, to introduce our bargain approvals. Money-back guarantee on this breathtaking, unusual collection. Write today. Wolverine Stamp Service, Dept. D-1, Fruitport, Michigan.

GIANT Approvals, Thousands Different at 1c and 2c. Wahl's Stamp Exchange, 7008K Farragut Ave., Chicago 31, Ill.

WONDERFUL Offer—7 complete Mint Sets Manchukuo etc. only 10c with approvals. Reich (S25), 1033 Lawrence, Chicago 40.

PHANTOM plane airmails—French West Africa (C12-14), showing plane over Dakar, phantom plane, storks, natives—valuable stamps actually flown in Africa. These big, handsome stamps plus a 50 country packet for just 25c to introduce attractive approvals. Modern Stamp Co., Dept. B-1, Ferrysburg, Michigan.

OPPORTUNITY! Gorgeous lot with Triangles, Diamonds, Giants, Midgets, Flags, Airmails, and Railroad Stamps. Also Guiana, Djibouti, Mongolia, Angola, New Caledonia, etc. Everything only 10c to Approval applicants. Evden, Box 128, Valley Stream 7, N. Y.

1/2—1—2c APPROVALS. Bargains Galore! Cole, 43G Rinewalt, Buffalo 21, N. Y.

OLD scarce U. S. seconds on approval. Slightly defective, bargain prices. Hearnfeld, Clintonhill Station, Newark 8, N. J.

59. SHIPS, Animals, Locomotives, etc. 6c with approvals. Ransom, 1333 Pontiac, Ann Arbor, Michigan.

COMMEMORATIVE sheet 40c value 3c with approvals. Enterprises, Box 371B, Kennebunkport, Maine.

FREE. 250 stamp hinges and 20 different Canada with approvals. Jaydee, 218 West Dickinson, Grand Rapids 7, Michigan.

PRIZE Contest! Everybody wins! 10c brings premium, approvals, entry blank. Seminole Stamps, Box 1138-S, Coral Gables, Florida.

ZOUNDS!! Exciting "Strange Countries." Savage and Exotic Lands packet—Free with approvals! Saxon, Vista, Calif.

SOUTH American Approvals, Excellent prices. Casilla 2861, Correo Central, Buenos Aires.

10 COMPLETE sets, 25c. Free Lists. Pinkerton, Box 81-M, Bethlehem, Penna.

"GOYA Nudes" 20c (Worth 55c) with approvals. German War Issues, cataloging \$10.82, \$2.50. Royal Stamp Company, Tamaqua 2, Penna.

EXTRA Special 1/2c approvals and better. Emil Auer, Buffalo 10, New York.

EARN up to \$50 week spare time with your stamp collection. Make hobby profitable! Your own leisure-time, Home-Business. Amazing opportunity! Complete 20 part, step-by-step, course and plan. Special introductory price! Rush only \$2.00 postpaid Worldwide Opportunities, 3156 W. 8th St., Los Angeles 5, Calif.

LOOKING for better U.S. on approval?? Write New-Way Stamp, Lawrence, Mass.

NEW Cambodia! Dancers set with 100 different 10c. Approvals. Sunset, Dept. 220-A, Box 47, South Gate, Calif.

KOREAN set free—Approvals. WBPS, Box 758, Wilkes-Barre, Pa.

100 DIFF. Australia \$1.00; 100 Diff. Canada \$1.00; 300 Diff. Denmark \$4.00; 500 Diff. Switzerland \$14.00; 1000 Mixed World \$1.00. Morville, 1835 Nelson, Vancouver, Canada.

101 DIFFERENT: Triangle set. Commemoratives, Pictorials, 10c. Approvals. V-Ann Stamps, G.P.O. Box 671-S, Brooklyn 1, New York.

FREE perforation gauge, approvals accompany. Lancaster Stampco, 191, Lancaster, Penna.

25 BRITISH colonies 10c, completely illustrated folders. Real bargains. Free sets to customers. Stoll Stamp Service, 2634 Burnett, Louisville 10, Kentucky.

100 DIFFERENT Spain 25c. Penny approvals included. Reed, Box 980, Chicago 90, Illinois.

OUR Penny Approvals jammed with Bargains. For Better values, try Putnam Stamp Company, Mahopac, New York.

20 DIFFERENT Belgium, Australian, Finland 21c each country. All 60c. Uhl, Lantana, Florida.

PENNY Approvals by country. M. H. Hoerning, 102, Farmington, Ark.

APPROVALS 1/2c up from 33,000 collection. Chur, Box 245, Buffalo 12, New York.

SAVE unnecessary wear on your album pages, save time, but most of all, save money and buy from our quality approvals. Everything mounted and marked with Scott's catalog number and prices, but at a big discount. First try will satisfy. Roseland Stamp Co., Dept. 9-A, Spring Lake, Michigan.

TRIANGLES! Seven Different—5c with approvals. Thrifty Company, Silver Spring, Maryland.

TRIANGLES! Latest Hungary—San Marino Bicolors; Truman, Hitlers; Free to "Approval Buyers." William Deems, Ravenswood, West Virginia.

SUPERB Approvals. Stamps 1/3 to 1/2 catalog. P. G. Beals, 125 Tremont St., Boston, Mass.

CANADA 7 Commemorative 10c, attractive approvals. Rheume, 6591 11th Avenue, Montreal, Canada.

FREE Triangles, U. S. Price List. Philatelic House, Rockville Centre, New York.

BARGAINS galore! Bulk mixtures, kiloware, packets—Illustrated catalog, 3c postage. Tower o, 1714 South Ashland, Chicago 8.

STAMP wallet plus small Irish collection 5c with approvals. Amberg, 537Y 35th, Union City, New Jersey.

BAHAWALPUR Silver Jubilee mint set free to applicants of U.S. or British Colonial approvals. Alan A. Taylor, Skyland, North Carolina.

SEND 100 different stamps plus 25c. Receive 110 different than yours. Mal Bevins, 214 Pierce, West Lafayette, Indiana.

NEW Zealand Elizabeth and Margaret Rose Triangles Scott B22-23 only 10c to approval applicants. George Richie, 1539 Sixth, Alameda, California.

300 DIFFERENT Stamps, 10c; Approvals. Moore, 85-87 130 Street, Richmond Hill 15, New York.

ARMENIA, Hongkong, Siam, Ukrania, Mongolia, Free with Approvals. Choice Stampco, Box 2126, Miami 40, Florida.

50 DIFFERENT world wide absolutely free, just to introduce our incomparable approvals. Kent Stamp Company, GPO Box 87-zm, Brooklyn, New York.

29 ANTIQUES, RELICS & INDIAN GOODS

6 ANCIENT Indian Arrowheads \$2.00. Grooved Tomahawk \$3.00. List free. Lear's, Glenwood, Arkansas.

30 MINERALS & PRECIOUS STONES

ATOMIC Trinitite! Send 25c for actual radioactive atomic blast specimen and information on prospecting for tungsten, uranium, mercury with ultra-violet Mineralite. Dept PS4, Ultra-Violet Products, Inc., South Pasadena, California.

PROSPECT For Profit, fun and health. Industrial minerals, uranium, tungsten, metals. Free Literature tells how, write today! Stratex Instruments, 1861S No. Hillhurst, Los Angeles 27.

GEMSTONES, Mineral specimens, Every variety. Lowest prices. Postcard brings free booklet. Plummer's, 4720 Point Loma Ave., San Diego 7, Calif.

SAPPHIRE, Aquamarine and ten more specimens semi-precious gem materials, \$2.00 for all twelve. O'Briens, 1116 Wilcox, Hollywood 38, California.

"GENUINE" red Arizona Rubies (Garnets). Send quarter for packet. Bitner's, Box 1025, Scottsdale, Arizona.

GEMOLOGY Books! Catalog 10c. Atlantic Books, 2 Lawrence, Charlestown 29, Massachusetts.

GOLD, Silver, Uranium Ore 50c. Generous selection all three \$1.00. Ozarka Minerals, P.O. Box 2026, Kansas City 42, Mo.

31 HOBBIES, COLLECTIONS

INVENTING can be an interesting and profitable hobby. Write for complete particulars. Institute of American Inventors, Dept. 30-E, 631-E St., N. W., Washington 6, D. C.

50 DIFFERENT army embroidered patches \$1. Other bargains. Insignia Mart, 703B Broadway, N. Y. C. 3.

WANTED—Cigarette, tobacco cards. Write Charles Bray, East Bangor, Penna.

FOREIGN Insignia Packet, Lists, 25c. Medcrafts, 421 Six A Street N.E., Calgary, Canada.

MILITARY miniatures catalog 25c. Bob Bard, 20 East Lexington, Room 312, Baltimore 2, Maryland.

UNUSED matchbook covers—100 different \$1.00—36 page Catalog 25c—Charles Edelman, 1311P East 84, Cleveland 3, O.

LEATHERCRAFT appeals to every member of the family. Make your own leather belts, billfolds, purses, hats, dresses, blouses from durable low-priced leathers. Tools, designs, supplies available. Free catalog. Tandy Leather, Box 397-D, Tulsa, Oklahoma.

COLLECT Cartophilic Cards! New fascinating hobby—interesting packet containing Birds—Butterflies—Aeroplanes—Flowers—Trains—and other rare cards—Plus big illustrated catalogue—All for 10c. International Cartophilic Co., Dept. PS, 1152 Yonge St., Toronto, Ontario.

10 PENNANTS or Decals \$1.00, any State, decorate room and car. Postpaid. Correo Trading Post, Correo, New Mexico.

32 PHOTO FINISHING, PHOTOCOPIES, ETC.

PHOTOGRAPHY for pleasure or profit. Learn at home. Practical basic training. Long established school. Free booklet. American School of Photography, 835 Diversey Parkway, Dept. 1741, Chicago 14.

COLOR Prints from color transparencies. (5 for \$1.00) size 2 1/4"x3 1/4". Value Color, Oakwood Station, Los Angeles, Calif.

ENLARGEMENTS! Eight 5x7's or five 8x10's, \$1.00. Wilart Enlargers, Box 967, Little Rock, Arkansas.

TWO Prints each good negative. 8-exp. 35c; 12-exp. 50c; 16-exp. 65c; Reprints 4c. Mayfair Photo Service, Box 617-A, Toledo, Ohio.

LAMPSHADES made from your own photographs. Inquire—Coast O'Maine Studio, Boothbay Harbor 7, Maine.

QUALITY Enlargement, Photocopying, 5x7 from picture \$1.25, 8x10 with billfold-size \$1.75. Shasta, 139 Essex Street, New York City.

ROLL Developed and 4x6 or 3 1/4"x4 1/2" oversize glossy Velox prints, 8 exposure 40c, 12 exposure 60c, 16 exposure 80c. Clemet Photo Service, 1318 West Columbia Avenue, Philadelphia 22, Pa.

JUMBO Prints (deckle edge)—8 to 12 exposure Film 39c per roll, developed and printed. Same-Day Service. Dean Studios, Dept. 6, Des Moines 2, Iowa.

NEW—16 oversize contact prints or 8 jumbos in album, 25c with this ad. Album Studios, Dept. S, Weatherford, Oklahoma.

FREE Mailers, 8 contacts 30c, jumbos—40c, 12—45c, Jumbos—55c, reprints—4c, Jumbos 5c. Western Photo PS33, Box 298, San Francisco 1, Calif.

MARCH Special, 5x7 enlargement from your negative put in matt mount only 50c. Or in Fenway photo case for only 69c. L. A. Eastman Studio, Bode, Iowa.

WHOLESALE Photofinishing. Save money. Make money. Details free. Variety Photo Service, 57-S Circuit, Newton Highlands 61, Mass.

33 MOTION PICTURES, SLIDES SOUND EQUIPMENT

GUARANTEED Fresh 8mm roll, magazine; 16mm roll, magazine movie film. Color, b&w. Free catalog. Eso-S, 47th Holly, Kansas City 2, Missouri.

MOVIE Camera Film: 8mm roll \$1.50, 16mm 100' \$3.00. Free processing. Better Films, 742 New Lots, Brooklyn, N. Y.

8-16MM. Silent-sound films. Complete rental library All latest subjects. Free catalogue. (sample film 10c). Garden Film, 317 West 50th, New York 19.

FREE Giant catalog of 8mm & 16mm films for home movie enthusiasts. Films for every occasion. Lee Stann, Dept. PS3, 11 Willard Ave., Mt. Vernon, New York.

WILD Life Films. Exciting, dramatic action in the natural habitat of animals of forest and plain. 8mm or 16mm in beautiful color or B & W. Also 2"x2" color slides. Write for free illust. literature. Wild Life Films, 5151B Strohm Avenue, No. Hollywood, Calif.

TAPE Recorders, Tapes, Accessories. Unusual Values. Dressner, 624 East 20th Street, New York City 9.

FREE. Movie and Slide lists; Sample Movie film, Goodwill Company, Jackson, Tennessee.

RENT 16MM sound films 50c reel. Large selection; free catalog. U. C. Film Service, 128 Chestnut St., Roselle Park, N. J.

5,000 NEW—Used 8-16mm. Silent-Sound Films. International, 2120 Strauss, Brooklyn 12, New York.

EXCHANGE 16mm. sound films, also for sale. Bedner, 5300 So. Talman, Chicago.

"ENTIRE Life Story Of Christ" 8mm. 16mm. Sound & Silent. Rent, Purchase. Hemenway Film, 31 W. Church St., Boston 16, Mass. State Projector.

SEND for Kodachromes of Korea. Scenes familiar to GI's. Set of 4 only \$2.00. Order blank on request. Edwin Ryan, Quincy Street, Providence 8, R. I.

MAKE your 8 or 16mm silent movies talk "in-synch" automatically. Guaranteed instructions \$1.00. Movievox, Dept. 3, 113 Pleasanton, San Antonio 4, Texas.

ALMOST free—with Blackhawk's big 24-page film bargain catalog—one brand new film (our selection) postpaid: 1-reel, 16mm. silent (300'), \$1.98—regular price, \$9.75—or 1-reel, 8 mm. (150'), 99c—regular price, \$5.95. Used 16mm. sound films, \$3.98 per reel up; used 16mm. silents \$2.98 per reel; used 8mm., \$1.98 per reel. Hundreds of titles normally available. Used Panoram 100' 16mm. musicals, six for \$4.99. New 16mm. sound releases, \$11.95 per reel; 8mm., \$2.98 per reel. New 2"x2" color slides, set of ten, 89c. Used 16mm. sound projectors—Ampros, Bell & Howells, Victors—often available low as \$129.95. Write today for Blackhawk's free catalog. Blackhawk Films Inc., 1120 Eastin Bldg., Davenport, Iowa.

34 CAMERAS, PHOTO SUPPLIES

BASS Says: Trading cameras a national habit since 1910. Write to Bass the old "Horse Trader." A postcard will do. Simply say: "Bass, I have and I want . . . How much will you allow me?" Satisfaction guaranteed. Bass Camera Company, Dept. AG, 179 W. Madison St., Chicago 2.

PHOTOGRAPHY for pleasure or profit. Learn at home. Practical basic training. Long established school. Free booklet. American School of Photography, 835 Diversey Parkway, Dept. 1721, Chicago 14.

AMATEUR Photographers, Easy plan to turn your spare time into cash. \$100.00 a week or more! Send for Illustrated Brochure & Full Information, enclose 25c to cover postage and handling charges. Harrison Studios, 13561-C Ventura Blvd., Sherman Oaks, Calif.

BOLSEY B2, unused, \$54.00. Free catalog, 1001 bargains. Dealer's Mart, Dept. S3, 11 Willard Ave., Mt. Vernon, New York.

ARUBA 35 camera! Bargain \$6.00. (Details 5c stamp.) Tsuboi, Kamakura 27, Japan.

KODAK Signet, Brand New, \$68.47. Free catalog, 1001 bargains. Dealer's Mart, Dept. S3A, 11 Willard Ave., Mt. Vernon, N.Y.

35 MUSIC, INSTRUMENTS & SONG WRITERS

WANTED! Poems for musical settings. Write Songwriters' Service, Clifton, N. J.

POEMS Wanted to be set to music. Free examination. Send poems. McNeil, Master of Music, 510-PS, S. Alexandria, Los Angeles, California.

SONGPOEMS Wanted. Mail to: Tin Pan Alley, Inc., 1650 Broadway, New York 19, N. Y.

POEMS Wanted for musical setting. Send poems for free examination. Five Star Music Masters, 646 Beacon Bldg., Boston, Mass.

SONGWRITERS! Send poems, songs. Music Service, 243 West 72nd St., PS, New York 23.

SONGWRITERS! Hold All Song Poems! Get Inside Facts First! Nationally known Songwriter's Booklet "Songwriting Secrets" tells All. Also list of Publishers, how to contact. All for \$1.00. No C.O.D.'s. Free Rhyming Dictionary with each order. Melody House, Dept. PS, Box 19007, La Tijera Sta., Los Angeles 43, Calif.

BIG Money offered new songwriters daily! Anyone can write songs by our method. Write for free secrets of profitable songwriting and free demonstration record. No obligation. No one will call. Meadowlark Music School, 118 Sumner Road, Colorado Springs, Colorado.

POEMS Wanted for musical setting on percentage basis. Free Broadcasts. Sooner Song Co., Box 8336, Dept. PS, Oklahoma City 14.

SENSATIONAL Free Booklet, "How To Write and Sell Songs." Get the facts first. Poems examined Free. Reliable Music Service, Box 430-B, Hollywood 28, Calif.

POPULAR Songs. How to write and sell them. Write for free booklet Successful Songwriting. Gateway Songs, Box 2470, Hollywood 28, California.

ELECTRIC Guitars, accordions, amplifiers. Wholesale. Free catalog. Carvin, Baldwin Park, Calif.

POEMS wanted for musical setting. Send poems. Free examination. Broadway Music Service, 1472 Broadway, N. Y. C.

1952 ACCORDIONS—Wholesale. Free catalog. American Accordion Center, 5329 Belmont, Chicago.

36 RADIO, TELEVISION, SUPPLIES & EQUIPMENT

MAKE simple, tubeless, batteryless, distance-getting crystal radios. Crystal and illustrated instructions 25c postpaid. Allen, 427-S, Clinton, Mo.

FREE Radio Tester. Tools. Soldering Iron. Build and keep 15 guaranteed high quality Radios—only \$19.95 complete. No experience required. Enclose 25c for valuable Radio-TV Repair Guide and catalog. Progressive Electronics, 497 Union Ave., Dept. PS-28, Brooklyn 11, New York.

BUILD sensational, inexpensive VTVM unit for your multimeter. Details \$1.00. Air-O-Tronics, Box 31, Lancaster, Calif.

COMPLETE Instructions How To Check and Repair Radios \$1.00. Slate's Radio Service, Corsicana, Texas.

FREE 236 Page 1953 Television-Radio-Electronic Catalog! World's largest stocks, lowest prices. Complete supplies for builders, experimenters, amateurs, servicemen. Latest television, radios, phonos, recorders, sound equipment. Thousands of parts, tubes, test instruments, books, diagrams. Top quality money saving values. Get yours now! Allied Radio Corp., 833 W. Jackson Blvd., Dept. 31-C-3, Chicago 7, Illinois.

TV Picture Aligner. Get Center Of Picture Screen. Vertical Center Line. Horizontal Center Line. Perfect Circles. Send \$1.50. Tele-Tru-TV-Pattern, Dept. S, P.O. Box 476, St. Louis 12, Mo.

BUILDER'S "Pictorial Construction Plans". Free List. Alena, Box 24, Astoria 6, New York.

MAKE Distance-Getting crystal radio that works. Fully illustrated booklet fifteen cents. Money back guarantee. Francis, Box 5963, Cleveland, Ohio.

ANTENNA ladder Hi-Lo wood plans. Dollar. Lewis Trocksell, 5311-B Pacific Blvd., Huntington Park, California.

SAVE 90% on your test equipment, free information. Technological Developments, 475 Fifth Avenue, New York 17.

ORIGINAL Home T.V. Service Kit: Standard kit: eight tubes, incidentals, hints. Services all sets. Send make, model and run or code numbers, with \$17.50 express or money order for quick delivery. Original, Box #43, Clifton Heights, Pa.

"CRYSTAL Radio Booster". Plans and crystal, 25c. Neher, 4308 Iroquoise, Long Beach 8, California.

RADIO Control model booklet with illustrated diagrams and list 18 builder's plans, 25c coin. Dittotax, 5208-B Onacrest, Los Angeles 43.

SIMPLE tubeless Razor Blade Radio. Plans 25c. Love, Box 1613, Charlotte 1, N. C.

AMAZING Television Antenna Eliminator. Small device attached to rear of set where it's out of sight. Out performs outdoor aerials. No snow, no ghosts. Send only \$2.95 or write for free details. Arrow Sales Co., Dept. 32, 2306 So. Howell Ave., Milwaukee 7, Wisc.

24 PAGE Plans "18 Crystal Sets" (SW record 5800 miles) 25c. including "Radio-builder" catalog. Laboratories, 1131-T Valota, Redwood City, California.

BUILD Television Antennas, 82 channels, six types. Antenna Instructions \$1.00. LP Engineering, Box 7824, Indianapolis, Indiana.

PHONOGRAPH Needles—78 RPM—Synthetic Sapphire Jewel Tipped for long life. Made to sell for \$3.00. Special \$1.00. Workmanship Guaranteed. Hilmar Products, 108 Hammell Place, Maywood, N. J.

MAKE money repairing radios, televisions, experience unnecessary. Course, parts, tools \$20.00. Literature free. Stego-tronics, Colchester, Conn.

10c WORTH material makes guaranteed Crystal Radio. Plans with sensitive galena Crystal 25c. David, Box 6008, Kansas City, Missouri.

TAPE, Wire, and Disc Recorders for home and business. Rudolph's Radio Service, 1707 N.W. 27th, Oklahoma City 6, Oklahoma.

37 BUSINESS OPPORTUNITIES

BIG Money and fun growing Live Miniature Ming Trees on your window sill. Write for Free rare tree seed and plan. National Nursery Gardens, 8463 South Van Ness, Inglewood 4, Calif.

GOOD Paying Business Silvering mirrors, plating autotops, reflectors, bicycles, bathroom fixtures, etc., by late methods. No tanks or shop required, outfit furnished. Free Booklet. Gunmetal Co., Ave. E, Decatur, Illinois.

EXTRA Money—No Selling—operate vendors. Amazing profits, details Free. Silver King, Suite 221, 622 Diversey, Chicago 14.

OPERATE profitable mail order business. Write Walter Service, 4159-B East 112th, Cleveland 5, Ohio.

MAKE money addressing envelopes. Our instructions reveal how. Glen Glenway, 5713 Euclid, Cleveland 3, Ohio.

HOW and where to obtain Capital? Free details. Star Service, Wapakoneta, Ohio.

RECAST old batteries into new. Latest achievements. Battery Laboratories, Minneapolis.

MAKE \$3.00 Hour At Home—I do—making sandals. George Youngs, 1308 South First, Arcadia, California.

ENVELOPES addressed accurately, reasonably. Fast Service. We have capable addressers in your city. Glenway System, 5713-X Euclid, Cleveland 3, Ohio.

IMPORT-Export! Opportunity, profitable, world-wide, mail-order business from home, without capital; or travel abroad. Established World Trader ships instructions for no-risk examination. Experience unnecessary. Free details. Melinger 13, Los Angeles 24.

THRILLING Profitable Home Business. Make fast-seller chenille monkey trees, dolls, flowers. Terrific holiday demand. Information free. Veiva, Bohemia 17, N.Y.

MAKE Gifts, Novelties, Jewelry, from sea shells, fish scales, plastics! Wholesale, illustrated catalog 10c. Giftcrafts, Box 4550-PP Coral Gables, Florida.

MAKE \$6.73 Every Time You sell one—and they're amazingly easy to sell! We have new Adding Machines in original factory cartons you can sell for only \$14.95 and you make 45%. They're executive model portables, precision built with automatic clearance, direct subtraction, fully guaranteed. Send for life size color photo with full details. Write today to Lightning Adding Machine Co., Inc., Dept. PS-11, 1260 West Second Street, L. A. 26, Calif.

\$25 WEEKLY Working two hours daily. No canvassing. No manufacturing. Lycke, Box 2471-B, Cleveland 12, Ohio.

MOLD Making Liquid Rubber; Sample pint, with instructions, \$2.00 postpaid; Plastercraft Supply Company, 3051 St. Clair Avenue Cleveland 14, Ohio.

NEWEST Spare, Full-Time Business. \$5 to \$10 hour possible. Paint with Suede—the finish with touch And eye-appeal. Beautify auto dashboards, signs, radios, toys, figurines, lamps—100, 1 others. Complete, Step-By-Step Instructions sent for no-risk examination. Free details. Coast, 1004-AJ, So. Los Angeles St., Los Angeles 15.

BOOKKEEPERS, increase earnings operating sensational bookkeeping service. C.P.A. system. Kern, 4942-B Vineland, North Hollywood, Calif.

NEW \$\$\$\$ Fabulous Home-Business "Jewelize" Finish. Free Sample. Free \$\$\$\$ Plan. Pearl-Art, 7216-B Bear, Bell, Cal.

MAKE Money At Home as renewal headquarters for all magazines. Liberal commissions. No experience—no capital needed. Supplies furnished. Write for Free Catalog. McGregor Magazine Agency, Dept. 510B, Mount Morris, Illinois.

START Venetian Blind Laundry. Profitable lifetime business. New Machine. Free Booklet. F.D. Co., 442 N. Seneca, Wichita 12, Kansas.

VENDING Machines—No selling. Operate a route of coin machines and earn amazing profits. 32-page Catalog Free! Parkway Machine Corporation, Dept. 73, 715 Ensor St., Baltimore 2, Maryland.

MAKE Money spare or full time, casting Metal Toys and Novelties. Big wholesale and chain store demand for Autos, Soldiers, Ashtrays, Banks, etc. keeps manufacturers busy. Production moulds furnished for up to 100 and more castings per hour. No experience or special place necessary. Write for information and illustrations of patterns needed. Metal Cast Products Co., Dept. E, 1696 Boston Road, New York 60, N. Y.

LEARN metalizing baby shoes, jewelry, gifts, Bronze, gold, silver. Complete success plan free. Kiktavi Building, 7217-PS South Broadway, Los Angeles 3.

POPCORN and Potato Chip equipment. Long Eakins Company, 5363 High, Springfield 99, Ohio.

137 PLANS for starting home business. Details: Elite Co., 220-A Grand St., New York 13.

SELL by mail; free details; instructive booklet 25c. Manhattan House, Box 51-L, St. Albans 12, New York.

START A Buying Service, buy wholesale thousands nationally advertised products. Make big profits selling at sizeable discounts. Postcard brings details. American Buyers, 627-T Linden, Buffalo, N. Y.

BUY Wholesale—Thousands nationally advertised items. Save—Make Money! Free details. Durex Co., Box 672-K, Chicago, Illinois.

NEW—Big Mail Order Seller To Women. Particulars Free. Liebig Industries, Beaver Dam 2, Wisconsin.

BOOKKEEPERS! Big Earnings. Operate Bookkeeping-Income Tax Service. Latest Amazingly Simplified Plans, \$2.00. Tackett's, North High, Salem 4, Indiana.

LEARN Sewing Machine "Big Money" Business. Repair, electrify, rent, trade, sell, spare time. New machines, motors, small parts, wholesale. Facts free. Taylor Service, Hamilton PS-3, Ohio.

TO \$35.00 Weekly, Spare Time. Home Operated Mailorder Business. Successful "Beginner's" Plan. Everything supplied. Lynn, 10420-C National, Los Angeles 34, California.

ADVERTISING book matches—Cash in on big demand—sell Union Label matches. Cuts for all businesses and political parties—Free powerhouse selling kit—low prices—protection guaranteed on repeat orders—Cash commissions. Superior Match Co., Dept. PX-353, 7530 Greenwood, Chicago.

EXPERIENCED Roof Repairer Franchise Protection. Luster-Kote, 19417 Derby, Detroit, Michigan.

BUY Wholesale big name items. Details free. Young's, Kent 3, Ohio.

HAIR Growth amazing Formulas. Pasyk Co., PSM3, Station D69, Toledo, Ohio.

RADIO Advertising Without Risk! Pay "per order"! 400 broadcasters! Details free! Simon-C10, 48 Fifth Avenue, Peiham 65, New York.

METALIZE, permanize, ceramize, porcelainize, baby shoes, dolls, pottery, hundreds of items. No firing, no baking. Tremendous profits without costly equipment! Send 25c for complete business plan and illustrated instruction book. Professional Art Products, Dept. P.S.-25, 845 S. Wabash, Chicago 5, Ill.

MAKE Money mailing cards; circulars. Pleasant; Profitable. Paton, Box 55-A, New York 23, N. Y.

WANTED! Home Producers! By Manufacturers in our Clearing House Service. Become a sub-contractor, casting plastic products for these companies. Thousands of easy-to-make items required for consumer and industrial use. Cash in at home, without previous experience. Write Plastic Service Associates, Dept. PS2, East Boston 28, Mass.

EARN Extra Money weekly mailing circulars for advertisers. Complete instructions—25c. Siwaslian, 4317-B Gleane Street, Elmhurst 73, New York.

BUY Wholesale from Nationally Advertised Manufacturers, Distributors. Literature free. Carter Publications, Box 6011-B, Chicago 80.

USED Oil re-refining. Free facts about this amazing business. Severs, 3909—67th, Des Moines, Iowa.

25%-50% COMMISSIONS taking magazine subscriptions. Details. Courier, 40-69H 97th Street, Corona 68, New York.

NEW Kind mail order home work! Carry no merchandise. No selling, manufacturing, experience, advertising investment, capital, necessary. Eye-opening proof free. Mann, 17 William, Hillsdale, New Jersey.

EARN extra Money! "Homeworker Magazine" tells how. Sample, 25c. Sizemore, Box 6, 4917 Kostner, Chicago 30.

MAKE Perfumes At Home. Write, "Carey Laboratories," 1914 Chouteau PS-3, St. Louis 3, Missouri.

LIQUID Rubber, make flexible molds. Free Sample. Chaney, 1130 E. 16th St., Jacksonville 6, Fla.

\$5 HOUR! Start Invisible Re-weaving at home. Free particulars. Law, 54-R East 99th, New York 29.

MAKE Rubber Stamps, repair dolls, learn invisible reweaving. Molding Latex, New Low Prices. Catalogue of "40 Ideas." Universal, Box 1076-B, Peoria, Illinois.

SELL books by mail! Wholesale catalog, 25c. Monarch, Auburn, New York.

SPECIALIZED Magazines covering your field of interest help You to greater success. Get latest copies through our Easy-to-Get-Acquainted Service. Hundreds of business, trade, professional, educational, sport, hobby gift, grocery, health, historical, horticulture, hospital, hotel, humor, insurance, jewelry and others covering All interests. Send for List today. It's Free. Commercial Engraving Publishing Company, 34S North Ritter, Indianapolis 19, Indiana.

SEND Stamp for Free Details on Mailing Postcard offering fast-selling merchandise. Maxted Book Agency, Western Springs, 12PS, Illinois.

GROW plants, flowers. Details Free. Shiffer, Box 129, Millersburg, Penna.

NATURAL Molding Latex. Extra thick. Free sample. New Low Prices. W. Wooley, 115B Donald, Peoria, Illinois.

NEW Exceptionally profitable plans, ideas for home operated mail business. Rush name. Miller, 1772-R Carlyon Road, East Cleveland 12, Ohio.

FREE Vending Machines; if used to sell our profitable nuts. Continental, Box 1361-B, Milwaukee 1, Wisconsin.

EARN \$15,000-\$30,000 annually. Franchise protected. Guaranteed minimum \$12,500 or money back. Live at home. No merchandise to buy. Self-employed. One of most exclusive and noncompetitive businesses in United States and Canada. Send 50c for explanatory book. Money refunded when book returned. Harrell & Company, Box A-2, Louisville, Illinois.

OPERATE "Escalator" Mailorder system, selling our products or any products. Fastest, most revolutionary mailorder system known. Write: Selbyco, Decatur 166, Ill.

"MAKE Products"—sell Mailorder Formula Catalogue Free—"Imasco," 8347 Par-nell PS-3, Chicago 21 Illinois.

FREE Booklet reveals amazing secrets behind 301 new, profitable enterprises! Many mailorder! Includes confidential instructions for starting wholesale buying service. Deumant Publications, 79-S Deumant, Kenmore 23, New York.

RAISE Orchids—at home—big profits—fascinating. Year 'round any climate. No Greenhouse. Instructions, including 3 Orchid Plants, sent for no-risk examination. Free details. Flowerland, 601-BR S. Vermont, Los Angeles 5.

PROFITABLE Home business, electroplating novelties, giftwares, autotops, mirrors. Easy inexpensive home processes. Free booklet. Tyco Metals, Box 13231-CM, Houston 19, Texas.

MAKE flexible molds! Cast plaques, bookends, figurines! Free sample! H Tooker, 630-A Chestnut, Hamilton, Ohio.

FULL or sparetime brings 40% profit. Details Free on request. No obligation. P.R.G. Products, 1533 Toul Avenue, Toledo 5, Ohio.

MAIL Order Business using profitable Free Advertising Method reaching 66½ million. Revealing information free. H. G. Seidel, 7070 Hollywood Blvd., Hollywood 28, California.

SAVE Money the 1953 M.O. Buyer's Directory Tells How and Where to buy everything for your own use or for resale to others. A must for every M.O. Dealer and beginner. Only \$1.00. Hurry! Costar Enterprises, Box 972, New York 1, N. Y.

MINK Raising information free. Complete. Lake Superior Mink Farm, Superior, EE 5, Wisconsin.

\$250 WEEK reported! Free book "505 Odd, Successful Businesses." Work home! Expect something Odd! Pacific-36C, Oceanside, California.

"INCOME" from local information. No Selling. Write Neherco, LaVerne 6, Calif.

GET Big Mails Galore: Latest Money-Making Offers Opportunities, Catalogues, Magazines, Samples, etc., etc. By listing your name in our Directory, 6 Issues \$1.00, 12 Issues \$2.00. Results Guaranteed. John Rodakowski, P.O. Box 9, Springfield, Ore.

BOOKKEEPERS. Keep books, small firms spare time. Manual latest technique by C. P. A. \$3.00. Modern Business, Box 406, Youngstown 1, Ohio.

PROFITABLE Mail Business! 10c brings details. Big Mail. Free plan included. Putney, 161-A West 62nd, New York 23.

50% PROFIT. Power mowers. Home-store assembly. Franchise deal. Rotacut-PM, Excelsior Springs, Mo.

SILK Screen Printing offers great opportunities. Make. Sell 100 Specialties. Typecrafters, 510-E West Susquehanna, Philadelphia 22, Penna.

TROPICAL Fish. supplies. Save! Representative your area will supply. Nmoae, Box 4635, Los Angeles 24, California.

BOOKKEEPERS — Operate profitable "No-Ledger" bookkeeping service. Write Frye, Box 432, Chester, South Carolina.

COLORGLAZED Concrete pottery made without molds. Patented method. Cemetery products, novelties, tiles. Basement leak-sealing. Money-making projects. Booklet, details free. Men only. National Potteries, Grand Rapids, "Minnesota."

FREE catalog, samples—Printed stationery, business cards, labels. Dealers wanted. Sutton Printing, Box 853-S, Waycross, Georgia.

\$46 FROM Square Foot Plywood: Jigsaw necessary. Write: Woodart, Bridgewater, Mass.

START home mailorder business—Details—Gedgard, Box 798E, New York 1, New York.

HOME Business opportunity mailing literature to new mothers. Everything furnished. Big Earnings. Orders Filled, Delray, Box 3852S, Columbus 13, Ohio.

PRINT Without Printing Press—Posters, banners, greeting cards, toys, glassware, neckties—anything! New "easy" Revolutionary Method. No special equipment or experience needed. Work full or spare time at home. No selling. We set up "your own local business." Wonderful \$\$\$\$ opportunity. Free sample. Profitable ideas, beautifully illustrated plan free. Write Screen-Print, 1010—South Los Angeles Street, Los Angeles 15.

SELL Religious Items By Mail—Millions of prospects. Big Profits. Everything Furnished. Literature Free. Kelley Box 1315B, San Francisco, California.

NEW plastic engraving, carving machine. "Dupliscaler." Fun and profits engraving, carving plastics. Details, sample 25c. Desco Distributors, 6334-M Sepulveda, Van Nuys, California.

GET Dollars In Your Mail—Keep Every Cent. Orders Filled Free. Genmerco, Box 142, Boston, 24A, Mass.

FORTUNE Possible. No Selling. Details 25c. Complete Plan \$2.00. Poston, Box 131, Jasper, Texas.

DRUG Sundries. Popular Brands. Sell to druggists, physicians and jobbers. Free price list. Sanitary Sales, Box 934, Rockford, Illinois.

HAVE Home Mail Business—Everything Furnished. Complete Idea-Mailbox Service. Start low as \$150.00. Booklet 25c. Details Free. NMD Agency, Box 88, Boston, 22B, Mass.

MEN-Women—"Everybody Likes Candy." Learn to make professionally at home. Tools and supplies. (Our 42nd year.) Ragsdale Candies, East Orange, N. J.

BUY it wholesale. Manufacturers. Distributors. Over 850,000 items. Literature free. Olsen, 1231-B East Third St., Duluth 5, Minnesota.

"MAKE Perfume" Catalogue Free—"International." 6347 Parnell-PS-3, Chicago 21, Illinois.

300 MAIL Selling Opportunities. 10c (Refundable). Lewis Bartlett, Richland, Ga.

FIX typewriters. Free booklet describes our modern, inexpensive home-study course. Factory methods taught. Write Typewriter, Building 4, Tarentum, Penna.

HOMEWORK—easy—profitable. Rush name. Siegel, Box 183-PS, New York 2.

START Business without Capital! Reliance, 15-B Park Row, New York 38, N.Y.

\$15.00 THOUSAND, highest prices addressing envelopes at home—longhand. typewriter. Torrey, A-8, Melrose 76, Mass.

SAWDUST Turn it into cash. Twenty methods. Instructions 50c. Charles Company, 12-EAS, Norwood, Ohio.

START your own profitable home mail-order business! We supply everything! Write today! Studio Products, Box 564-DA, Glendale 5, California.

QUICK Sign painting. Use Letter Patterns. Avoid sloppy work, wasted time. Write for sample. John Rahn, B1330 Central, Chicago 51.

GET Into Profitable Mailorder Business Now. Write R. Jackson, Box 1018, Irving, Texas.

BIG Money! Start your own Plastic Business at home. Spare or full time. (Also valuable Liquid Marble information). Free Catalog—Write: Bing Products, PS-353, Watertown 72, Mass.

EARN Money With Typewriter—Sewing Machine! Details Free. Edwards, 3915-PS, 12th, Des Moines 13, Iowa.

SELECT Homework Opportunities! Folder Free. Mailtrader, Box 643, Ann Arbor, Mich.

SELL By Mail. Free Details—Instructive Booklet 25c. Charles Gadsby, 426 West 49th Street, New York City.

START a Telephone Answering Service in your home, wonderful business. Postcard brings details. Telephone Answering Service, P.O. Box 103, Somerville 45, Mass.

OWN, Operate Route—"Wishing Wells". Place these New \$7.50 Skill Games on counters in Cafes, Luncheonettes, Clubs, etc., collect coins weekly. "Legalsheres," Box 929, Long Beach 1, California.

\$4,000.00 PROFIT in two months. No investment. Details 50c. Charles Company, 12-EAV, Norwood, Ohio.

POSSIBLE to earn \$180 weekly! No capital. Details \$1.00. Dickman's Service, Box 301, Margaretville, New York.

MAKE extra money at home—spare, full-time—selling by mail. Brand new instructions—that tell how—sent for 7-Days No-Risk trial. Free details. Bill Hill, Box 683-H, Akron 9, Ohio.

MONEY in new greaseless doughnuts. Start in kitchen. No smoke. Sell stores. Free recipes. S. Ray Co., 3605 South 15 Ave., Minneapolis 7, Minn.

38 MONEYMAKING OPPORTUNITIES

21 POPCORN, Candy Apple Formulas, proven money-makers. Send \$1 today for formulas, catalog of money-making ideas. Concession Supply, 3916 Secor, Toledo, O.

DETECTIVES Earn Big Money. Experience unnecessary. Detective Particulars free. Wagoner, P-125 West 86th, N. Y. 24.

SCHOOL Seniors—Earn sensational profits selling classmates America's Most Beautiful Graduation Name Cards. Largest selection. Outsell all others. Free sample kit. Printcraft, Dept. P, 1509 Maple Street, Scranton 5, Pa.

\$10,800 PROFITS! Your own Mailorder Business! No Capital Risk! "Success Plan" (worth \$2) Free! Write today! Treasury, 149 Storer, New Rochelle PS-9, New York.

SELL Titania gems: \$9.75 carat wholesale. More brilliant than Diamonds. Free catalogue. Diamonite, 1404-S Mitchell, Oakland 1, Calif.

SPARETIME Profits Taking Subscriptions. All Magazines. Wholesale Catalog Free. Cassell Agency, Westfield 1, N. J.

MAKE Money addressing Envelopes! Our information reveals how. Only 30c. Business, Dept. 45-C, P. O. Box 2224, St. Louis, Mo.

NEW Plastic Mending Tape. Just press on! Repairs clothing instantly. Lightning seller. Samples sent on trial. Kristee 177, Akron, Ohio.

START a Mail Order Business. Small Capital. Details \$1.00. Fred Hettick, Sec'y, Box 775, Bismarck, North Dakota.

START A Buying Service. buy wholesale thousands nationally advertised products. Make big profits selling at sizeable discounts. Postcard brings details. American Buyers, 631-T Linden, Buffalo, N. Y.

EARN While You Learn Make Your Mirrors—Silvered Glass ornaments, Bottles, etc. Big profits—Good Hobby—Detailed illustrated course includes Trade Formulas—Only \$1.50. Illustrated Co., 176 San Fernando Rd., Los Angeles, Calif.

HOW To Conduct A Bulk Vending Machine Business Successfully Send \$1.00 for Booklet. Roam Vending Service, 294-B Bronxville Road, Bronxville 8, N. Y.

PLEASURE and Profit. Preserve live flowers to last for years. Details free. Trial size \$1.00. Refundable. Hermansen, 210 Fifth Avenue, New York 10, N. Y., Suite 1102.

PAY grocery bills growing 12" trees. Flower—bear fruit. Former Japanese secret now revealed. New method brings quick results. Free details. Miniatures, 5591 Western, Buena Park 80, Calif.

MANUFACTURE needed auto item. Easily made—In kitchen or corner basement! No special tools! Costs 6c. Retail \$1.00! Big demand! Belmont, Garrett 12, Indiana.

FUTURE Security: Learn Watch-Clock Repairing at home. While learning we fix your watches—clocks. Inquire. Modern Technical Supply Co., 55-PS W. 42nd Street, New York 36.

EARN Money Evenings, copying and duplicating comic cartoons for advertisers. Adservice, Argyle 2, Wisconsin.

MANUFACTURE Rhinestone and Pearl Jewelry at home. Latest creations, tremendous profits, no skill needed. Postcard brings illustrated catalog of settings, stones, etc. A. V. Cutt Co., Inc., 210-H Fifth Ave., New York 10, New York.

FREE Booklet reveals amazing secrets behind 301 new, profitable enterprises! Many mailorder! Includes confidential instructions for starting wholesale buying service. Deumant Publications, 83-S Deumant, Kenmore 23, New York.

ORDER three hair trimmers \$1.50. Sell two 75c each. Hess, 216-S-1-Street, Independence, Kansas.

WANTED: Typewriter owners. Make handsome profits. Write today. Groves Company, 682 Hastings 3, Nebraska.

\$35 WEEKLY addressing envelopes. Instructions \$1, refundable. Adservice, Spring Valley 36, New York.

PROSPERITY in 1953 details 25c. John Earhart, RFD 5, Lancaster, Penna.

EARN money spare time. Free Particulars. Chamberlin, Box 894, Manchester, New Hampshire.

FREE! Your own mailorder business! Everything furnished! No investment! Terrific profits! Write today. California Vitamins, 2910PS Beverly Boulevard, Los Angeles 4, California.

PLEASANT spare time work. Write. RTK Sales, P.O. Box 6693-C, Cleveland 1, Ohio.

LIVE Better—Live Happier—Find security. Profit In The Country. Interesting facts Free. Hermes Publishers, 152-D West 42nd Street, New York.

FREE Book "505 Odd Successful Businesses." Work Home! Expect something Odd! Pacific-35C, Oceanside, Calif.

MAKE to \$4.50 hour doing common pen lettering. National Artists, 801½ North Marsalis, C-5, Dallas 3, Texas.

COSTUME Jewelry will bring you fabulous profits—easy sales! Our terrific Line includes popular-priced Coronation Jewelry! Send for catalog and wholesale prices—for re-sale only! Penn Jewelry Co., 826 W. Lacka, Ave., Scranton, Pa.

WE Pay Cash For Boxtops, Labels, Wrappers, Coupons, etc!! Particulars free. Boxtops, 1211-PS Bryden, Columbus 5, O.

WIN contest money. General Contest Bulletin gives hundreds of tips. Lists current contests and rules. Sample 25c. General Contests, 1609-A East 5th, Duluth, Minnesota.

EARN money. Make beautiful figurines. Business. Hobby. Free information. Main Plan, Box 166, Bridgeport, Conn.

\$15 HOURLY, home, spare-time, investment-free! Mailway, Box 198-C2, State College, Pa.

\$\$\$ IN Personalized Baby Record Books. Sell By Mail Use Same Literature We Do. No-Co-Ro. Oakland 6-P, Calif.

NOTARY Public commands more money. Be One. Stationers, Helotes, Texas.

SELL Books, Merchandise, By Mail. Everything furnished! Free details. Paragon, Box 5-A, Providence 8, R. I.

39 FORMULAS, PLANS, ETC.

FORMULAS—All kinds. Latest products. Literature free. Kemico, Park Ridge 15, Ill.

FREE Formula Catalog. Anything analyzed \$35.00. Western Chemical, Salem, Ore.

GET \$1.00-\$2.00 Orders By Mail—Keep every cent. Everything furnished. Write Alliance Sales, 568-A, Alliance, Nebraska.

COSMETICS. Interesting hobby. 25 formulas 25c. Bob Jenkins, Monticello, Fla.

NEW Formulas. Free literature. Dr. Hertstein, 511 Thomas, Grand Rapids, Michigan.

LABORATORY tested formulas. Lists Free Post, Box 635-PS, Terre Haute, Ind.

ANY Formula \$3.00. Chemical Instruction Sheet—catalog 10c. J. Belfort, 216 W. Jackson, Chicago 6.

FOR the best in modern manufacturing formulas, get my literature! Established 1897. Liscombe Miller, Tampa, Florida.

40 PLASTICS

PLASTICS home-craft course for Men and Women. Tells and shows how to make hundreds of fast selling plastics products. All plastics and materials for 23 projects included in course. No special tools needed. Course pays for itself. Write for Free booklet. Interstate Training Service, Dept. D-2C, Portland 13, Oregon.

LUCITE. Plexiglas. Any size sheets masked Square foot (12 x 12) cost 1/16" \$1.20; 1/8" \$1.40; 3/16" \$1.75; 1/4" \$2.08. Include 10% postage. Almac Plastics, 600 Broadway, N. Y. C.

SPECIAL offering of Plexiglas. Send 10c for catalogues. Van Horn Plastics, 1905 Ingersoll, Des Moines, Iowa.

PLASTIC Sheets, Rods, Tubes, etc. Free List. Plastic Supply Co., 2901 N. Grand Blvd., St. Louis 7, Mo.

MAKE Plastics. Simple instructions, formulas, \$1.00. Materials readily available. Lab. Box 232, A. St., Cashmere, Wash.

LEARN Plastics at home. Small cost—Spare time. Dime brings sample plastic, three experiments, full details. Plastic Projects, Box 5151, Detroit 35, Mich.

"WORKING With Plexiglas" 70 page Illustrated Plastic Manual. Material Catalog \$1.00 Postpaid. Plastic's, Box 1812, Salt Lake City 10, Utah.

PLASTICS, Lucite, Plexiglas, Acetates, Polyester-Fiberglass. Compare our retail-wholesale prices. Be sure you get our new value-packed, bargain-filled catalog—10c. Airmailed—25c. Gem-O'-Lite, Box 6862H, North Hollywood, California.

NEW liquid casting plastic. Clear, colors. Embed flowers, insects, coins. Saw, drill, carve. Send 25c for Castolite Creations Manual and proved Success Plan showing how to make money at home—or ask for free folder. Castolite, Dept. C-102, Woodstock, Illinois.

41 CHEMICALS & APPARATUS

LABORATORY Apparatus. Chemicals. Microscopes. Complete Chemistry Sets. Minerals. Uranium Ore 10c brings catalog. Porter Chemical Company, Hagerstown 2, Maryland.

NEW Idea Chemical and Apparatus Outfits for Home Experimenting Photo-Scales. Microscopes. Chemicals. Biological and Laboratory. Supplies in Small Quantities. Catalog 25c. Established 1931. John H. Winn, 124-B West 23rd Street, New York, N. Y.

LUMINOUS Paints will glow in dark. Six colors. Fairmount Chemical Co., 136 Liberty St., New York City 6.

SPECTROSCOPE for quick chemical analysis \$3.00. Cutting Sons, Los Altos, Calif.

ILLUSTRATED Catalog: Chemistry, mineralogy, biology, 10c. Tracey Laboratories, Evanston, Illinois.

EXPLOSIVES—50c brings instructions for making nitroglycerine-guncotton-blasting caps and many others. Portland Chemical Co., 1729 N. Decatur Rd., Atlanta, Ga.

CHEMICALS and apparatus for industrial, analytical, and private laboratories. Catalog 20c. Dept. M-26. Biological Supply Co., 1176 Mt. Hope Ave., Rochester 20, N. Y.

SECOND Printing. Improved version. Spectacular chemical fireworks experiments manual. Contains complete setups, formulas, instructions on thermites, fulminates, explosive powders, etc. Still \$1.00 postpaid. Chemi-Technix Laboratories, 568U Riley, Buffalo 8, New York.

NEW Chemical Supply Catalog, 15c. refundable. Laboratory Sales, Box 161-B, Brighton, Mass.

PERMANENT Alnico Magnets. never loses magnetism. Many uses. 12 for \$1.00. Pritt Co., Dept. MS-3, 12 West 27th, N. Y. C.

42 HELP WANTED

FOREIGN & Latin American Employment 1953 "Foreign Service Directory" gives Up-To-Minute Facts on Military & Civilian Construction, Government Jobs, Major Oil Listings, Aviation, Transportation, Steamship Lines, Mining, Importers, Exporters, How-When-Where to apply, application forms, Hot List Firms Hiring. \$1.00 postpaid. Global Reports, Box 883-S, Hollywood 28, Calif.

ALASKA!! Last American Frontier. \$1.00 brings 1953 Business Directory & Government Map. Military & Civilian Construction; Homestead & Highway facts; Mining, Aviation, Fur Farming, Grazing, Timber, Travel directory. List of firms hiring. How to apply. Alaska Opportunist, Box 92, Hollywood 28, Calif.

JOIN The Merchant Marine. Excellent Pay. Foreign Traveling. Free Details. Daventport's, 1170-B5 Broadway, New York 1.

FOREIGN Employment Construction men, building trades, helpers, office men, others, interested in Foreign Projects. High wages, quarters, transportation. Send \$1 for Foreign Construction Compendium and Application Forms. Foreign Service Bureau, Dept. PS-3, Metuchen, New Jersey. (Not an employment Agency—no fees.)

NORTH Atlantic Airbase job hiring hundreds monthly. Laborers earn \$1100 per month, skilled \$1450, superintendents to \$2250. Folio \$1. Jobservice, Box 30, Billings, Montana.

CALIFORNIA offers America's highest pay, best opportunities. Over 30 pages information compiled by reliable firm: industries, jobs, wages, housing, lands available, opportunities. Investigate your future in fastest-growing State! Send \$2.00 to: Pacific Industrial Associates, Dept. G-2, Box 832, Santa Barbara, California.

\$1300.00 MONTHLY for truck drivers, \$1400.00 monthly for carpenters, electricians, plumbers and mechanics, \$1200.00 for accountants, \$1100.00 for laborers and clerks, over \$2000.00 monthly for supervisors. Now being hired. For full information and complete foreign listings, \$1.00. Also domestic listings, \$1.00. Construction Workers Service, 1111 Commerce Bldg., (PS-3), St. Paul, Minnesota.

CANADA's boom creates jobs, send \$1.00 for "Construction & Oil Worker's Monthly Bulletin" listing Construction projects & oil Drilling Contractors, National Surveys, Box 402, Vancouver, B.C., Canada.

\$1,000.000 FOREIGN & Domestic Construction Projects published Monthly, gives Contractor & Locale. How-When-Where to apply with application form, \$1.00 postpaid. Global Reports, Box 883-PX, Hollywood 28, Calif.

NYLONS at Wholesale Prices. Fields Hosiery, 99-H Chauncy, Boston, Mass.

CALIFORNIA—Men needed now. Unlimited openings. Jobs for everyone. Skilled—unskilled. Highest wages. Send \$1.00: California Job Opportunities, Box 870-J, Los Angeles 53, California.

HONOLULU Help Wanted columns airmailed \$1.00. Pomeroy's, #3 Campbell Block, Honolulu, Hawaii.

42A EMPLOYMENT SERVICES

OVERSEAS Jobs. Big pay, transportation expenses. Clerical, professional, mechanical workers. Most all trades. Latest listings airline, construction, manufacturing, oil, steamship companies, government agencies, many other opportunities. Up to date information on securing employment, contracts, income tax, applications forms. \$1.00. Overseas Jobs, Box 335-B7, Baton Rouge, La.

FOREIGN Jobs. Contracts underway and soon starting in Africa, South America, Canada, England, Europe, South Pacific, Middle East, Mexico and Alaska. Send \$1.00 for foreign job news, information, application forms, etc. DCS Foreign Job News, Dept. 268-NF, Bridgeport, Ill.

CONSTRUCTION Job List. Published Monthly. \$1.00. Dempster's Construction Scout News, Dept. 268-NE, Bridgeport, Ill.

43 AGENTS WANTED

GOLD Lacquered and silver sign letters. Windows, doors, trucks, Standard Sizes. Penny and up. Samples. Atlas-G, 544 West 79th, Chicago 20.

NEW Jobs open in selling! Send name, address for five free issues of Opportunity Magazine's money-making guide, listing hundreds of companies who'll pay you well, full or part-time. No experience needed. Opportunity 28 E. Jackson, Dept. 18, Chicago 4, Illinois.

START Your Own Business on credit. Your own boss. 1586 of our Dealers sold \$5,000 to \$27,500 in 1951. We supply stocks, equipment on credit, 200 home necessities. Sales experience unnecessary. Pleasant, profitable business backed by world-wide industry. Write Rawleighs, Dept. C-U-PS, Freeport, Ill.

BIG profits selling ties (\$2.00 values) \$6.50 dozen. Free catalog. Empire Cravats, 648A Broadway, New York 12.

AGENTS—300% profit selling genuine gold window letters; stores and offices. Free samples. Metallic Sign Letter Co., 431-E North Clark, Chicago.

BUY Wholesale—25,000 items—Catalog 25c. Matthews, 1472-A6 Broadway, New York City 36.

PRINTING — Salesbooks — Envelopes. Free Illustrated Catalog—Ersco, Dept. PS, Bronx 72, New York.

NEED extra money? Show your friends Wonderful Regal line of All-Occasion Greeting Cards. Over 100 beautiful assortments to choose from. Also Exclusive Stationery unobtainable elsewhere. No experience necessary. Your profit up to 100% plus bonus. Write for free samples. Sales kit on approval. Regal Greeting Card Co., Dept. 128, Ferndale, Michigan.

BE A Money Maker . . . Use your home as magazine headquarters. Liberal commissions. No experience—No capital needed. Everything furnished. Write for Free Catalog. McGregor Magazine Agency, Dept. 510A, Mount Morris, Illinois.

SELL Miraclic Orlon Embroidered Work Uniforms: Looks, feels, tailors like wool; wears 3 times longer. Outwears cotton 5 to 1. Acid-proof, grease-resistant. Washes perfectly pressed. Amazing profits. Outfit Free. Topps, Dept. 543, Rochester, Ind.

ABSOLUTELY Free, yours for the asking. Send postcard today requesting free sales kit showing complete new line, belt buckles with your name or personal initials, cap badges, 3000 different emblems also uniforms, caps, shirts, ties, wallets, etc. Write Hook-Fast Company, Box 480PS, Roanoke, Virginia.

ANYONE Can Sell Hoover DuPont Nylon Uniforms for beauty shops, waitresses, doctors, nurses, others. In white and colors. Exclusive styles. Top quality. Low priced. Exceptional income. Real future. Equipment free. Write fully. Hoover, Dept. K-101, New York 11, New York.

MAKE Money with fast-selling Bostonian Shirts. Blouses too. Spare time, full time. Sales Kit Free. Bostonian, 89 Bickford, Dept. U-11, Boston 30, Mass.

AMAZING discovery. Master Glaze puts brilliant glass-like surface on cars. Free sample information. Big commissions. Master Glaze, Dept. 764, 7720 Harwood, Milwaukee, Wisconsin.

BUY Wholesale thousands nationally advertised products at big discount. Free "Wholesale Plan". American Buyers, 629-T Linden, Buffalo, New York.

NEW "Sponge" Wall Cleaner. Erases dirt like magic. Wallpaper, painted walls, ceilings. Saves redecorating. Lightning seller. Samples sent on trial. Kristee 158, Akron, Ohio.

BARGAINS—terrific savings—job Lots—Close-outs! Also save up to 50% on dry-goods, clothing, hosiery, notions, drugs, toiletries, gifts, jewelry, television, etc. 2000 items. Send 25c for wholesale bargain catalog with special "get acquainted" offer which includes free \$1.00 merchandise certificate. Reliable Jobbers, 311-J, North Desplaines, Chicago 6.

BUY Wholesale—Thousands nationally advertised items. Save—Make Money! Free details. Durex Co., Box 672-M, Chicago, Illinois.

BIG Money making opportunity. Exclusive line work uniforms, Jackets, pants, shirts, coveralls. Advertising embroidered. Every business prospect. Outfit Free. Master Div., Dept. 494, Ligonier, Indiana.

MAKE your dreams of success come true! We can show you how. Sell direct exclusive Spring-Step cushion shoes—a new idea in foot comfort. Earn up to \$25 daily! Full or part time. Free sales equipment. Write today! Dept. PS24, Ortho-Vent Shoe Co., Salem, Va.

FREE Samples. Big profits showing amazing Glow-in-the-Dark specialties. House numbers, pictures, plastic novelties, ashtrays, keyholders, religious and nursery objects, etc. Madison Plastics, 303 Fourth Ave., New York 10, N. Y.

EXTRA Money Every Week. I'll send you full-size Blair household products. Show them to friends and neighbors. You can make Big Extra Profits. Write Blair, Dept. 55LC, Lynchburg, Virginia.

WHERE To Buy 800,000 articles direct from manufacturers at wholesale prices. Send name, address for free outline. Glass Publishing Company Ellwood City 8, Pa.

RUN Your Own Repeat-Order Shoe Business! 3 sales a day brings up to \$63 or more a week Extra with fast-selling Consolidated Shoes! No experience or investment needed. Fit customers stores are unable to take care of. Special kinds of shoes for different occupations. Send postcard now for Free Selling Outfit! Consolidated Shoe System, Dept. CC22, Chipewawa Falls, Wis.

STRANGE "Dry" Window Cleaner Sells like wild. Replaces messy rags, liquids. Simply glide over glass. Samples sent on trial. Kristee 156, Akron, Ohio.

PHOTO-Salesmen-Agents. Sell beautiful hand colored plastic enlargements and sensational new photo compacts, rings, bracelets, lockets, etc. Collect deposit, we deliver. Profitable sideline. Send card for Free sample kit. Novel Portrait Co., 3343-A North Ave., Chicago, Ill.

NEW easy way to make money! Show friends new ideas in All Occasion greeting cards, gift wrappings, home and gift items. Big profits. Experience unnecessary. Request Feature Samples on approval and free samples exclusive Name Imprinted Stationery. Gold Imprinted items. New England Art Publishers, North Abington 811-C, Mass.

CAN you use \$60.00 extra per week? Show amazing cushion comfort shoes. Commissions to \$4.00 pair plus Cash Bonus. Experience unnecessary. Write for Free Catalog, full information Tanners Shoes, 271 Boston, Mass.

GET Into Toys! Big money. Show Free toy-gift line full or spare time. Take orders. Pocket juicy profits. Styleco, Dept. E362, Cincinnati 10, Ohio.

NEW Car Given as bonus. Make Money spare time. Unusual nylons guaranteed to wear definite time or replaced free! Rush name and hose size. Lowell Wilkin, 2033 Wash., Greenfield, Ohio.

BIG Profits on Brand Names! Appliances, giftwares, etc., like Wearover, Bulova, Eversharp, Hickok, Silex, Detecto. Sell Themselves. New! Illustrated catalog Free! Over 280 items. Winderman, (Dept. D33), 527 Hendrix Street, Brooklyn 7, N. Y.

ABSOLUTELY Free—Sales Kit. Yours for the asking. Send postcard today requesting kit showing new line, belt buckles with your name or personal initials, cap badges, choice 3000 different emblems. Write Hook-Fast, Box 1425PS, Providence, R. I.

CALIFORNIA sweet smelling beads, sensational sellers. Particulars free. Mission, 2326P West Pico, Los Angeles 6, Calif.

SCIENCE believed to have discovered Secret of Rust Prevention hidden in ancient Egyptian Soils. Rus-Tov, Amazing Tool and Metal Protector—Keeps Rust Off. Distributors, Salesmen, Demonstrators, Factory Workers, Mechanics, Dealers, Agents, Routemen, send for Free Details. Don't miss this. Goodwin Manufacturing Company, Inc., Chemical Specialties, 126 W. Fifth St., Dept. PS-1, Kansas City, Missouri.

IS \$210 a week worth a postcard to you? Then rush card with name and address for special Free Trial Plan that sells amazing new Automatic Refrigerator Defroster "like hot cakes!" Write to Mr. Lewis, D-Frost-O-Matic Corp., Dept. W-103, 173 W. Madison, Chicago 2, Ill.

AGENTS—Show America's leading Nationally Advertised line—Novelties, Gifts, Utility Items, 100% Profits. Prospects everywhere—Steady Repeats. Write today for sensational low prices. Free Literature. Charms & Cain, 407-PS-33 South Dearborn, Chicago 5, Illinois.

MEXICAN Feather Pictures. Terrific Profits! Adelphi, Box 57-G, Bellerose 26, New York.

MAKE \$15.00 day selling our large illustrated old money guarantee buying 25c catalogue, 100 postpaid \$10.00. One dozen \$1.50. Worthycorn Corporation (A-101) Boston 8, Mass.

SELL Big Money-Maker to Men and Women. Easy handwork makes fast-selling useful articles. Sample free. Sunmade Company, Brockton 64, Mass.

FREE book "505 Odd, Successful Businesses." Work Home! Expect something Odd! Pacific-38C, Oceanside, Calif.

'53 WHOLESALE Dealer Kit On Appliances, Typewriters, Recorders, Cameras, Giftware, etc. Free. Write Arrow Distributing, 154-A Nassau Street, New York.

AGENTS urgently needed by manufacturer—sell genuine diamond crosses individually boxed, \$24 dozen or \$2.50 sample. Box 1119, Grand Central Station, New York 17, New York.

PAINTS—All kinds. 65c gallon up. Private label. Big profits. Certified Products, Louisville, Kentucky.

POSITIVELY Make \$50.00 a day and up selling brand new item going to every type of Food and Beverage Store, Factories, Laboratories, Hospitals, etc. Samples furnished. Utility Durawear, 53 West Jackson Blvd., Dept. PS-3, Chicago 4, Ill.

SALESMEN, Distributors, fast selling costume jewelry direct from factory. Big picture catalog free. Pickcraft, C-19 Bank, Attleboro, Massachusetts.

INCREASE your profits with our quality neckties. Write for actual samples of material, and price list. Loren Specialties, 4351-BB Flournoy, Chicago 24, Illinois.

MEXICAN Feather Pictures. Sell on sight; 200% profit! Free details. Sample 20c stamps. (No Coins). Sylvias, Apartado 9036, Mexico City.

SELL All-Occasion Greeting Cards. Also Brand Name Merchandise. Free Catalog. Samples on Approval. Earn 50% profits. Universal, 569 Main, Paterson, New Jersey.

BIG news. Big money for spare time. Show gorgeous Melville Frocks. Get own dresses free. Rush name, address, age, dress size. Melville Company, Dept. 7977, Cincinnati 25, Ohio.

44 HIGH-GRADE SALESMEN

AD Matches! Sell Amazing Designs—20, 30, 40 and 240-light book matches. Biggest spot cash commissions; every business a prospect. Low prices for high quality. Repeats. Start without experience; men, women; full, part time. Buy Nothing! Sales kit furnished. Match Corp., Dept. PS-39, Chicago 32, Illinois.

ADVERTISING book matches—Cash in on big demand—sell Union label matches. Cuts for all businesses and political parties—Free powerhouse selling kit—low prices—protection guaranteed on repeat orders—Cash commissions. Superior Match Co., Dept. P-353, 7530 Greenwood, Chicago.

45 EDUCATIONAL & INSTRUCTION

PIANO Tuning Pays. Learn this profitable profession at home. Our Tonometer and mechanical aids make learning easy. No knowledge music necessary. Diploma granted. Largest and oldest school—55th year. G. I. Approved. Write for booklet. Niles Bryant School, 77 Bryant Bldg., Washington 16, D. C.

LEARN Piano Tuning, Repairing—at home in 30 days. Unlimited income. Phonograph recordings, tools and instructions furnished. Write Capitol City Tuning School, Department C-333, 129 East Michigan, Lansing 16, Michigan.

USED Correspondence Courses and Books sold and rented. Money back guarantee. Catalog free. (Courses Bought.) Lee Mountain, Pisgah, Alabama.

HIGH School—No Classes. Study at home. Spare time. Diploma awarded. Write for Free catalog. HBA-22, Wayne School, 2527 N. Sheffield, Chicago 14, Ill.

FOR an extremely profitable lifetime business. operate a Collection Agency. Quickly learned. Write Cole Associates, Syracuse 2, New York.

WANT A Diesel Job? New Opportunities to increase income. Higher Pay. More Money. We can help you Qualify. Tools. Shop method home training. Write today! Diesel, Tractor, Heavy Equipment Division. Interstate Training Service, Dept. 2-C, Portland 13, Oregon.

BOOKKEEPERS! Increase your earnings! Operate your own simplified "Dollar-A-Week" Bookkeeping and Tax Service. Full or spare time. Details Free. No obligation. Ellis, Box 203-C, Cedar Grove, North Carolina.

INCREDIBLE! Unprecedented! Look under "Personal"! Bijou, Box 1727-V3, Hollywood 28, California.

BE a Real Estate Broker. Study at home or in classroom in leading cities. Write for Free Book today. Weaver School of Real Estate, 301 Law Bldg., Kansas City, Mo.

PRACTICAL Nursing—Learn Easily at Home. Spare Time. Big Demand. good earnings. High School not necessary. Write for free facts. Wayne School, Dept. FH-13, 2525 Sheffield, Chicago 14, Ill.

RADIO, electricity, algebra, trigonometry, calculus. Individualized instruction. Free details. Write: Registrar, New Correspondence School, Box 27, St. John's Place Station, Brooklyn 13, New York.

WANTED Used Instruction Books. Courses. Joe Jones, Box 321, Meridian, Miss.

WELDING training pays at Hobart Welding School, Box P-331, Troy, Ohio. VA Contract. Best equipment. Catalog Free.

MEDICAL Laboratory Technicians in great demand. We train you in your own home. Catalogue free. Imperial Technical Institute, Box 973-B, Austin, Texas.

BECOME a Doctor of Psychology or Metaphysics. Learn secret of contentment, happiness. Win degree of PsD, or MsD. Solve mental worries. Free book. College of Universal Truth, 5038-K Broadway, Chicago.

BARTENDING and management. American Bartending School, P-334 S. Wabash, Chicago, Illinois.

FREE home study course in basic economics, offered as a public service. Recommended by many leaders. Send postcard for complete information. Henry George School, Dept. P, 50 E. 69th Street, New York 21, New York.

BECOME Traffic Expert. Get top executive job. Details free. Union Institute, Lakewood 11, New Jersey.

TEST amazing easy six lesson drugless healing course 45 days without risk for Asthma, Colds, Arthritis, Rheumatism, Constipation, Stomach troubles. Results truly wonderful! Information free; or better still get one or more lessons at \$5.00. You must be perfectly satisfied or money refunded. William Carter, 516½ Carlisle, Cincinnati 3, Ohio.

USED Correspondence Courses and Educational Books Bought, Sold, Rented. Catalog Free. Educational Exchange, Summerville, Georgia.

OIL Painting's a cinch. Free Details. Texcen, So. A. Box 3132, Austin, Texas.

RELIGIOUS Homestudy Degree Courses! Free Bulletin! Midwestern Bible School, 517 Merchants Bank Building, Indianapolis, Indiana.

GET A Gov't Job! Men-Women; 18-55. Start high as \$316.00 month. 50,000 jobs open. Qualify Now! Experience often unnecessary. Get Free 32-page Civil Service book showing jobs, salaries, requirements, sample tests. Write: Franklin Institute, Dept. X-22, Rochester, New York.

FREE catalog. Hypnotism. Self-Hypnosis. Auto-suggestion. David Bishop, 299 Broadway, New York 7.

"HYPNOTISM", 23 chapters. Large Index. \$3.00. David Stewart, Dept. 52, P.O., Malvern, Ontario, Canada.

BANISH Stammering \$1.00. J. Allen, Box 114, Saskatoon, Sask., Canada.

ENGINEERING Handbooks—standard McGraw-Hill references. Also many Formulas, Literature. Paullin, 109SC, Loudonville, Ohio.

HYPNOTISM—Illustrated lessons for beginners—\$1.00. Money-back guarantee. Baltimore School of Hypnotism, Dept. 303-A, 4214 Belmar, Baltimore 6, Md.

STAMMERERS. Proven method for correction. Write Mark Institute, Box 824, Martinsville, Virginia.

CIVIL Service jobs for Men-Women. Free Booklet. Grant Coaching Bureau, Lee Building, Suite 702, 103 East 125th Street, New York 35, New York.

CONTESTS

TIE-Breaker picture puzzles exposed. \$2.00. Wenograd, Box 1495, Philadelphia 5, Penna.

47 DETECTIVES

DETECTIVE Training. Phillips Secret Service System, 1917-C North Kenneth, Chicago 39, Ill.

DETECTIVES—Work home—Travel. Experience unnecessary. Detective Particulars free. Write, Wagoner, P-125 West 86th, New York 24.

48 LANGUAGE OUTFITS

IT'S Fun Learning A Language by Linguaphone. At Home, in leisure time, quickly, easily correctly master Spanish, French, German, Russian, Japanese—29 languages through Linguaphone World's Standard Conversational Method. Write for free book, Linguaphone Institute, 5403 Mezz., Rockefeller Plaza, N.Y.C.

50 BUSINESS SERVICE, INFORMATION, NAME LISTS

MAILING Lists. All kinds 1000 \$5.00. Dixie Service, King, N. Carolina.

500 **LATE** cash names \$2.00. Harvey Teeple (PS) Decatur, Indiana.

CANADA unlimited investment opportunities in oils, mines, industries, specific questions \$2.00. Cascade Information Co., Box 5, Banff, Alberta, Canada.

MAILING lists, new; of automobile owners, 1000 names \$5.00. R. J. Dunlap, P. O. Box 1046, Colorado Springs, Colo.

MAILING Lists! Nationwide. Bulletin available. Mailtrader, Box 643, Ann Arbor, Michigan.

51 SPECIAL SERVICES

IF you sell wholesale or give free samples, \$1.00 places your address and business on our list to interested Mailorder buyers. Robert Johnson, Ewart, Michigan.

LETTERS written, mailed 50c. 6 for \$2.00. Letters remailed post-cards sent 25c. 6 for \$1.00. Schroeder, 757 Delta, Cincinnati, Ohio.

FIND Manufacturer of anything. Details free. BGS, 817 University, Wichita, Kansas.

PROFESSIONAL Engraving At Wholesale Prices! Your jewelry, metals, cups, etc. engraved at the low cost of 8c a letter. Work guaranteed. Merchandise returned insured in 7 days. Leonard Engravers, 6409 Laurel Drive, Box 100, Baltimore 7, Maryland.

52 AUTHORS SERVICE

NO Luck finding a book publisher! Write for Free Booklet PS. Vantage Press, 120 West 31st, New York.

BEGINNING Writers: Get \$1 to \$20 checks daily writing simple children's stories, articles, poetry in your sparetime. Experience unnecessary. Our instructions reveal how. Details Free. W. Herman, 7016 Euclid, Cleveland 3, Ohio.

POETS. Professional review of your work. Poem scanned for rhyme meter and returned promptly with personal letter containing suggestions and valuable comment. Mail Poem and \$1.00. Albert Lambert, 213 Lyster, Oreland, Pa.

53 ADVERTISING

ADVERTISE: 24 words, 100 Canadian Newspapers, \$5.50. Lists Free. Advertising Bureau, 10511-P Springfield, Chicago 43.

FREE 1953 Guide with rates, ideas for classified, mail order advertisers. BT Nationwide Advertising Service, 2108 Payne, Dept. A, Cleveland, Ohio.

54 CARTOONING, SIGN PAINTING, CHALK TALKS

"HOW To Make Money With Simple Cartoons"—A book everyone who likes to draw should have. It is free; no obligation. Simply address Cartoonists' Exchange, Dept. 193-C, Pleasant Hill, Ohio.

LEARN top flight cartooning through easy Landon Picture Chart Method. Former students include creators of "Steve Canyon," "Freckles," "Out Our Way," "Winnie Winkle," many others. Earn while learning. Send 10c for ability-testing Picture Chart, full details, Landon Cartooning School, 5323 CTS Bldg., Cleveland 14, Ohio.

9 ALPHABET 3. Numeral pattern sets and raised wood letter catalog \$1.00. Sign Letter Distributors, P. O. Box 101, Mineola, New York.

CARTOONISTS: Amateur. Professional Prepare for Animation with Max Fleischer's plan. Free Examination. Write Vera Coleman, 60 East 42nd Street, New York, N.Y.

CARTOONING made easy with The Kartoon Kadoodler. Kartoonist, Newtown, Connecticut.

LEARN Sign Painting at Home. Test Lesson Free. Ben Kerns, Box 812-PS, Greenville, South Carolina.

CHALK Talks. Laugh Producing Program, \$1.00. Illustrated Catalog 10c. Cartoonist Balda, Oshkosh, Wisconsin.

MOLDED plastic letters for signs. Faulkner, Box 45, Produce, Florida.

55 TYPEWRITERS & OFFICE MACHINES

TYPEWRITERS. Printing Devices. Office Machines, supplies, appliances. Dixie Graph, King, N. Carolina.

TYPEWRITERS. \$20.00 up; Stencil Duplicators, \$29.50; stencils, \$2.60 quire; ink, \$1.00 pound, 6 pounds \$5.40; f.o.b. Natmerch, B-1975-BC, Little Rock, Ark.

56 RUBBER STAMPS & OFFICE SUPPLIES

THREE Line Rubber Stamp, \$1.00! Morey's, 2529 Roosevelt, Redwood City 2, California.

3 LINES Pad \$1.00. Indelible Ink Pen Wash Fast \$1.00. Signature \$2.35. Rubberpress, 1252 E. 75, Chicago 19, Illinois.

57 PRINTING, MULTIGRAPHING, ETC.

BUSINESS Printing. Samples. Prices Free. Howprint, 723-S Eunice, Webster Groves 19, Missouri.

100 8 1/2 x 11 LETTERHEADS and 100 Envelopes \$2.00. Benneville Printing, Box 1931, Pittsburgh 30, Pa.

OFFSET Printing. Letter service. Prices, samples free. Planet, 223E Chamberlain Bldg., Chattanooga 2, Tennessee.

1000 EMBOSSED business cards \$4.50. Samples free. Jimmy Linton, Box 30-A, Russellville, Arkansas.

1000 LETTERHEADS or Statements 5 1/2 x 8 1/2. \$5.95 Postpaid. Samoset Press, Plymouth 2, Mass.

OFFSET printing—Low prices, high quality. Free Samples, estimates. Mohican, Box 68, Poquonock Bridge 10, Conn.

1,000 DUOCOLOR Business Cards, \$3.85. Jumbo embossed, \$5.45. Blotters, \$5.95. Samples. Payne Sales, Des Moines 14, Ia.

FINE Printing—Prompt service—Wide selection modern type styles, colors, cuts. Free samples, prices. Wilcox, Nicholls, Ga.

200 8 1/2 x 11 LETTERHEADS. 6 3/4 envelopes, \$3.75. Yutz Press, Pottsville, Pa.

LETTERHEADS or envelopes 100—\$1.00. Wieck, 677 Henry, Brooklyn, New York.

1000 GUMMED labels \$1.00. 5/8 x 2 1/8. Three lines. Orwat, 1243 South 54th Street, Philadelphia 43.

500 EACH envelopes, bond letterheads—\$6.50. Kreg Press, Windsor 3, Vermont.

100 8 1/2 x 11 HAMMERMILL Letterheads \$1.00 Postpaid. Envelopes same. Herbert Hudson, Centredale, Rhode Island.

PRINTING. Lowest prices. Free samples. Weeks, 2632 Nolensville Road, Nashville, Tennessee.

1,000 BUSINESS Cards, \$2.35 postpaid! Other printing. Dornfeld, Iron Ridge 24, Wisc.

100 8 1/2 x 11 LETTERHEADS and 100 Envelopes \$2.00 Postpaid. Rush Service. Samples Free. Catalpa Press, 5519 N. Clark, Chicago 40, Illinois.

100 PRINTED business envelopes or letterheads \$1.00. Salesbooks \$3.00—Toy Guns, Broadbrook, Botsford 4, Conn.

CIRCULARS—5000 5 1/2 x 8 1/2. \$18; 3 1/4 x 5 1/2. \$8.25; folders, books. Printer Garrison, Harrisonburg, Va.

58 PRINTING OUTFITS, SUPPLIES

DO your own printing. Save money. Simple rules. We supply everything. Print for others; good profit. Raised printing like engraving, too. Have home shop. Details free. Kelsey Presses, V-8, Meriden, Conn.

MAKE your own, self-molding, rubber printing cuts. Plexirubber, Argyle 2, Wisc.

PRESSES. Supplies. Paper catalog 10c. Custom, Box 211-S, Springfield, Missouri.

PRINTING Presses. Type Supplies. Lists 3c. Turnbaugh Service, Loysville, Penna.

59 PATENT ATTORNEYS

INVENTORS: Without obligation, write for information explaining the steps you should take to secure a Patent. John N. Randolph, Registered Patent Attorney, 207 Columbian Bldg., Washington 1, D. C.

INVENTORS: When you are satisfied that you have invented something of value write me, without obligation, for information as to what steps you should take to secure a Patent. Write Patrick D. Beavers, Registered Patent Atty., 938 Columbian Bldg., Washington 1, D. C.

INVENTORS. For "Invention Record" form, contact Carl Miller, Registered Patent Attorney, Woolworth Building, N. Y.

C. A. Snow & Co.—S-427, Snow Building, Washington 1, D. C. Registered Patent Attorneys. Write for information.

INVENTORS: Learn how to protect your invention. Unless the inventor is familiar with patent matters, he should engage a competent registered patent attorney or agent to represent him. We are registered to practice before the U. S. Patent Office and prepared to serve you in handling your patent matters. "Patent Guide for the Inventor" containing detailed information concerning patent protection and procedure with "Record of Invention" form will be forwarded to you upon request—without obligation. Clarence A. O'Brien & Harvey Jacobson, Registered Patent Attorneys, 32B-A District National Building, Washington, D. C.

"INVENTOR'S Guide" free. Frank B. Ledermann, Registered Patent Attorney, 154 Nassau Street, New York.

INVENTORS—If you believe that you have an invention, you should find out how to protect it. The firm of McMorrow, Berman & Davidson is qualified to take the necessary steps for you. Send for copy of our Patent Booklet "How to Protect Your Invention" and "Invention Record" form. No obligation. McMorrow, Berman & Davidson, Registered Patent Attorneys, 1438 Victor Building, Washington 1, D. C.

PATENTS—Irving L. McCathran, 316 McLachlen Bldg., Washington 1, D. C. Registered Patent Attorney.

INVENTORS—If you have a valuable invention, you are advised to authorize a preliminary search through appropriate classes of United States patents. This firm is registered to practice before the Patent Office and is available to make such search and report to you concerning the probable patentability of your invention. Instructive booklet with "Evidence of Invention" form sent upon request. Victor J. Evans & Co., 841-C Merlin Building, Washington 6, D. C.

60 FOR INVENTORS

INVENTORS. if you have an invention for sale, patented or unpatented, write Institute of American Inventors, Dept. 30A, 631-E St., N.W., Washington 6, D. C.

INVENTORS. For "Invention Record" form, contact Carl Miller, Registered Patent Attorney, Woolworth Building, N. Y.

INVENTORS: Without obligation, write for information explaining the steps you should take to secure a Patent on your invention. John N. Randolph, Registered Patent Attorney, 206 Columbian Bldg., Washington 1, D. C.

INVENTIONS Promoted. Patented or Unpatented. Established 1911. Write Adam Fisher Company, 183 Enright, St. Louis, Mo.

CASH For your ideas. 280 Manufacturers need inventions, patented or unpatented. List free. Invention Bureau, 208-S Clinton, Oak Park, Illinois.

INVENTORS: Learn how to protect your invention. Unless the inventor is familiar with patent matters, he should engage a competent registered patent attorney or agent to represent him. We are registered to practice before the U. S. Patent Office and prepared to serve you in handling your patent matters. "Patent Guide for the Inventor" containing detailed information concerning patent protection and procedure with "Record of Invention" form will be forwarded to you upon request—without obligation. Clarence A. O'Brien & Harvey Jacobson, Registered Patent Attorneys, 32A-A District National Building, Washington, D. C.

INVENTORS—Send for free patent information book and inventor's record. Registered Patent Attorney. Associate Examiner, Patent Office 1922-29; Patent Attorney & Advisor, Navy Department 1930-47. Gustave Miller, 33PSI Warner Building, Washington 4, D. C.

INVENTORS! For "Copyright, Design & Patent Guide" contact Mr. Metzler, 11 West 42nd, New York 18.

INVENTORS—If you consider your invention to be something of importance, take steps to protect it with a United States Patent which gives you the right to exclude others from making, using and selling your invention as claimed. "Patent Protection for Inventors" outlines steps to take to secure patent protection. Mailed promptly without obligation. Victor J. Evans & Co., Merlin M. Evans, Registered Patent Attorney, 742-C Merlin Building, Washington 6, D. C.

PATENT Searches, \$5.00 including patent copies. Same reliable search as conducted for patent attorneys. Promotion and marketing services also offered. Free protection forms. 48 hour service. Patent Service Institute, 945-B Pennsylvania Avenue, Washington 4, D. C.

PATENT Searches \$5.00, 48-hour service. Patent Applications and Drawings prepared. Record of Invention forms free. Write Miss Ann Hastings, P. O. Box 176, Washington 4, D. C.

"INVENTOR'S Guide" free. Frank B. Ledermann, Registered Patent Attorney, 154 Nassau Street, New York.

PATENT searches \$5.00, including patent copies, 48 Hour Airmail service. "Record of Invention" free. Same careful, reliable searches conducted for patent attorneys. Capitol Patent Service, Box 664-S, Washington 4, D. C.

PATENT Pending, No attorney required! 21-page Instruction Book sent on approval. Paladin Publications, 622-B Sheraton Bldg., Washington 5, D. C.

INVENTORS—If you believe that you have an invention, you should find out how to protect it. The firm of McMorow, Berman & Davidson is qualified to take the necessary steps for you. Send for copy of our Patent Booklet "How to Protect Your Invention" and "Invention Record" form. No obligation. McMorow, Berman & Davidson, Registered Patent Attorneys, 1437 Victor Building, Washington 1, D. C.

COPYRIGHTS procured promptly. State nature. Russell E. Tupper, 18 Lyman, Beverly, Mass.

INVENTIONS analyzed for submission to industry. Harold S. Rand, 1300 Commerce Building, Rochester 4, New York.

SEARCHES—Put your patent searches in the hands of a Registered Patent Attorney or Agent as he qualifies to give a worthwhile patentability report. Record of invention form upon request and information on patent protection. Patrick D. Beavers, Registered Patent Attorney, 939 Columbian Bldg., Washington 1, D. C.

INVENTORS! Idea Men! Learn How and Who to contact with your ideas. Costs very little! Free information. Notturmo, 1104-W Broadway, Hewlett, New York.

PATENT Searches \$5.00, 48-hour airmail service. Patent Applications, Drawings and Amendments prepared. Free Record of Invention. Write Patent Engineering Service, 711 14th Street, N.W., Washington 5, D. C.

DEVELOPING, Designing and small lot manufacturing. Plastics, Rubber, Metal and Wood. Harry Smith Specialties, P.O. Box 9378, Akron, Ohio.

NEED Help, Inventor? Send name for free information. Stark Co, S3, Grafton, Wisconsin.

61 INVENTIONS WANTED

INVENTIONS promoted. Patented or Unpatented. Established 1911. Write Adam Fisher Company, 183 Enright, St. Louis, Mo.

INVENTORS: Hundreds of manufacturers have requested our assistance in locating marketable new products. Complete information, free. Institute of American Inventors, Dept. 30C, 631-E Street, N.W., Washington 4, D. C.

MARKETING Aid—Nation Wide. Patented, patent pending. Booklet free. Market Contacts, 719-B2, Magnolia, Tupelo, Mississippi.

INVENTIONS wanted. Patented; unpatented. Tremendous Manufacturers lists. Global Marketing Service, 1404 Mitchell, Oakland 1, Calif.

INVENTIONS Wanted. Patented or Patent Pending. 21 years experience Promoting Inventions. National Service Bureau, 3122 Meramec, St. Louis 18, Mo.

CASH buyers for ideas and inventions. Write National Inventors Institute, 4097 East 131st St., Cleveland 5, Ohio.

62 PATENTS FOR SALE

WANTED Collaborators or will sell outright patent ideas, "patents", "formulas", Songs Copyrighted Lyrics. Worth Millions of Dollars—for proof, 9200 Hough Ave., Cleveland 6, Ohio. RA13773.

TOY Movie Viewer, Plastic. Weight 2 oz., simple construction. F. T. Coffey, Sr., Los Angeles 37, California.

64 MODELS, MODEL SUPPLIES

THREE Model Railroad Catalogs 10c. Shannon's, 503 Franklin, Nutley 10, N. J.

SHIP and Yacht model fittings; blueprints. Send 25c for illustrated catalog No. 28—Listing hundreds of items. A. J. Fisher, 1002-2 Etowah, Royal Oak, Mich.

SHIP Model and yacht supplies, complete large 64 page catalogue, 30c. Wm. Wild, 510 E. 11th St., New York City.

UNIVERSAL "Flexi-Fit" 1/4" Scale building kit \$6.00 postpaid. "A Complete Lumber Yard at Your Elbow"! Booklet and samples 25c. Min-Scale Millworks, Inc., Kingston, Tennessee.

SHIP Models Ltd. Kits, fittings, Plans, Custom Work. 1953 catalog 25c. Box 751, Brookline 47, Mass.

BRASS Gears and model supplies for the inventor. Send 10c for catalog. Pierce Model Works, Tinley Park, Ill.

MINIATURE furniture kits. Solid cherry. Easily assembled. Large selection. Cat. 20c. Culver Miniatures, 194 61st, Niagara Falls, New York, Dept. E.

BUILD miniature homes with our accurately-scaled materials. Send 25c for booklet and samples. Architectural Model Materials Inc., Dept. S-33, 4208 Armitage Avenue, Chicago 39.

STEAM engines; boilers, castings. Catalog 25c. Anton Bohaboy, 2297 Price, Rahway, New Jersey.

CLEAN Balsa 4 lbs. \$1.00. Gudmestad, 14 Crestwood Lane, Clark, Rahway, N. J.

FAMOUS Catalogs: Ships, Fittings, 169 pages, 50c; World's Tinplate Trains, 148 pages, 50c; H.O. Trains, 140 pages, 50c. Each includes 50c refund coupon. Collectors Soldiers 25c. Polk's, 314 Fifth Avenue, New York City 1.

MONSTER Hobby-Craft Catalogue. Trains, Planes, Boats, Crafts, 25c Refunded. Nassau Hobby, 35 Church, Freeport, N. Y.

65 HOME CRAFTSMAN

LEATHERCRAFT, Copper Tooling, Textile Painting, Beadcraft, Shellcraft, Many other crafts. Big Free catalog shows everything you need. Kit Kraft, 7373 Melrose, Hollywood 46, Calif.

LEATHER, tools, lacing, supplies. Free Catalog. National Handicraft, 199 William St., New York 7.

"PRACTICAL Painting, Wood Finishing" shows how to get professional results. Furniture finishing, workshop projects, home decorating. Complete Modern brush and spray methods. Tricks you've never seen. Write Home Craftsman, 115-F Worth St., N. Y. 13.

OUR biggest Leather and Craft Catalog yet! 1000's of items. Send 25c (refunded with 1st order). Russo Handicraft Supplies, Dept. 106, 245 S. Spring, Los Angeles, California.

TOOLING Copper, Free Instructions, Flock, Tools, Finishes. Bestcraft, 949 Kenwood, Inglewood, Calif.

LEATHERCRAFT, New Stylecraft folder Free. New Kits illustrated. Filigree Belts, Billfolds, Purses, etc. Send 25c new catalog. Refunded first order. Apache Leather Co., 2804 East Washington St., Phoenix, Arizona.

PLASTICS home-craft course for Men and Women. Tells and shows how to make hundreds of fast selling plastics products. All plastics and materials for 23 projects included in course. No special tools needed. Course pays for itself. Write for Free booklet. Interstate Training Service, Dept. D-2C, Portland 13, Oregon.

"TOPS" In everything for leathercraft. Low priced kits, leathers, tools, lacing. Catalog 10c. Crown Leathers, 22 Spruce Street, New York 38.

DOWELS, Supplies. List free. Queens Dowel House, 240-37 Edgewood, Rosedale 22, N. Y.

LEATHERCRAFT, Everything needed by beginners, advanced hobbyists and professional leatherworkers. Largest stock of supplies in U. S. Moderate-priced tooling leathers, top-quality calfskins, tools, supplies, kits. Send 10c for Big Catalog. J. C. Larson Co., 820 S. Tripp, Dept. 2954A, Chicago 24, Illinois.

ADJUSTABLE Pipe Jaws for Bench Vise 1/4 to 2" Pipe set to any angle 90°, 180°, \$1.00—Plus 20c postage. Spring Held, H. A. Johnson, P. O. Box 62-PS, Fruitvale Station, Oakland 1, California.

LAMP Size Cypress Knee \$1.00! Cy Products, Ella Street, Lafayette, La.

89 FULL size Jig Saw patterns of beautiful shelves, ornaments, toys, novelties plus "How, Where to Sell." Only \$1.00. Mastercraft 34S, 7041 Olcott, Chicago 31, Ill.

KNOCKDOWN cedar chest and lumber free price list. Bedford Lumber Company, Shelbyville, Tennessee.

FURNITURE—Modern Prefabricated—Save \$\$\$—You Assemble. Artcraft, East Peoria, Illinois.

100 FULL size Jig Saw patterns up to 20" high, only \$1.00. Pattern Service, Medway 8, Mass.

SQUAREKNOTTERS: Make belts, handbags, lanyards, dog leashes, etc. Special offer! Beginner's book, catalog and quality cord samples 15c. P. C. Herwig Co., Dept. P41, 121 Sands St., Brooklyn 1, New York.

VIOLINMAKERS, Amateurs, Professionals. Fine tone European wood, materials, supplies, instructions, Tools, Patterns. Illustrated catalogue 10c, refunded. Premier Violin Supplies, Dept. VPS, 430 South Broadway, Los Angeles 13, California.

BEAUTIFUL Cypress Knee Lamps \$7.95 without shade—Satisfaction Guaranteed. B. H. Brady, Jr., Box 97, Le Compt, La.

MANZANITA, Beautiful color, grain. Unusual growths. Lamp size \$2.50 postpaid. Mack, Whiskeytown, California.

KNOCKDOWN Cedar Chest, Lumber and Veneers. Free Price List. Giles Co., Brownsboro, Alabama.

90 ALL new full size lawn ornament and novelty patterns, up to 20" high. Only \$1.00. Mastercraft 32S, 7041 Olcott, Chicago 31, Illinois.

LAWN Ornament Patterns! Giraffe Family, Suckling Foal, 50c. Pauls Plans, 2233A No. 35th, Milwaukee 8, Wisconsin.

SEND postcard for catalog illustrating hundreds distinctive workshop projects. Craftplans, 1321-B South Michigan, Chicago 5.

MAKE Leathercraft your hobby. It's fun to make leather belts, billfolds, purses right in your own home. Show your friends the results. Free Catalog shows how. TandyLeather, Box 397-D, Tulsa, Okla.

LEATHERCRAFT Tools. Leather Embossing Plates. Craft Accessories. Dies. Catalogue 10c. Louis Jones Engineering Company, 1613 Main, Fort Worth, Texas.

LEATHERCRAFTERS: Big illustrated catalog of materials, tools, kits, 10c. Art's Leather, 411 Joseph Ave., Rochester 5, N. Y.

PADHACKSAW revolutionary saw combining best features of Padsaw and hacksaw. Semi-automatic. Performs jobs normally done by 6 different tools. Makes cuts of unlimited length and design. \$3.95. National Sales Service, Monroe, Wisc.

BATHROOM Secretary. Full size patterns and instructions for beautiful toilet tissue magazine rack. 50c. Helm Novelty Center, Box 296, Parker, Indiana.

FREE Details. Nine power tools built from simple home materials. Hill A-Z, Box 358, Lee, Mass.

LEATHERCRAFT Tools. Lacings, H. Byrd, 3406 Montrose Avenue, Richmond, Va.

93 "ORIGINAL Idea" Jig Saw patterns \$1.00. Professional drawing, quality printing. Full size shelves, toys, lawn ornaments, novelties. Walker Studio, PS-3, 4343 Lindell, St. Louis 8, Mo.

LAWN Patterns. Man Sawing Wood, Woman Washing. Southern Exposure 25c each. Other Patterns. Strother, Box 128PL, Belington, West Virginia.

JIGSAW Blades Twisted to cut every direction. Sample dozen 25c. Refundable. Giant Tools, Box 8081, Newark 8, N. J.

66 BUILD IT YOURSELF

SEND for big new 1953 illustrated catalog that will show you how to turn your spare time into cash—making quick-selling, highly profitable lamps. Every home a prospect. Hundreds doing it—you can, too. No experience or special tools required. Catalog No. 7 contains 56 pages filled with shades, shade frames, figurines and bases, oil lamp converters, boring compound and dozens of similar items. Also all kinds of sockets, cords, pipes, harps, finials, bases and hundreds of other parts—everything you need. Special 8-page section shows 6 beautiful lamps in kit form—ready to assemble. You buy wholesale, sell at retail—make big profits. Send 25c today for new 1953 catalog and wholesale price list—you'll be glad you did. The 25c will be refunded on your first order. Gearon Co., Dept. 500-A3, 28 S. Desplaines, Chicago 6, Ill.

BUILD with Concrete, Fieldstone, Earth. Movable form system cuts costs. Construction simplified. Free literature. Smith PS, Box 36, Eagle Creek, Oregon.

BUILD Your Own "Tractor". Free information. Eltraco D-5, Camptonville, Calif.

BUILD your own power tools. Save 90%. catalog of 100 plans 25c. Fellows, Caledonia 4, New York.

FURNITURE—Modern Prefabricated—Save \$\$\$—You Assemble. Artcraft, East Peoria, Illinois.

GRANDFATHER Clock shop tested plans dollar. Thousands built. Kuempel Clocks, Minneapolis 16.

BUILD Streamlined plywood kitchen cabinets. Plans, photos, instructions 50c. Playnecabinets, 4617 Johnson, Western Springs, Ill.

FREE handbook build sawmills, block machines, freezers, tractors, scooters. Nichols Company, Purvis 3, Mississippi.

BUILD inexpensive concrete blockmaker, motor or hand. Write Clyde Lee, Mountain View 1, Oklahoma.

"CONCRETE Block Homes," 32-page booklet on how to build \$1.00. H. C. Lightfoot, Civil Engineer, Richboro, Penn.

CLOTHES Dryer—Rotary Drum Cabinet Type. Plans, instructions. \$1.00. Artisan Technicraft, P. O. Box 846, Phoenix, Arizona.

67 OLD GOLD, JEWELRY, WATCHES, ETC.

HIGHEST Cash Paid For Old, Broken Jewelry, Gold Teeth, Watches, Silverware, Diamonds, Spectacles, Platinum. Free information. Satisfaction Guaranteed. Rose Smelting Company, 29-Y East Madison, Chicago.

JEWELRY making. Send 20c for illustrated catalog. Milady-Fair Co., G.P.O. 1328, New York City 1.

5000 JEWELRY styles you can easily make yourself—Pins, Earrings, Bracelets, Rings, matched ensembles. Instructions and catalog 10c. Barrys, 126 Ardsley Court, Newark, N. J.

\$10.00 FOR your watch on \$71.50 Name Brand watches. Fashion Trends, Box 2372, Dallas, Texas.

SWISS watches from importer. For resale only. \$3.30 up. Catalog. Transworld, 565 5th Avenue, New York City.

EXPANSION Watchbands, imported. For resale only. All sizes and qualities. Sample \$1. Free catalog. Transworld, 565 5th Ave., New York.

RHINESTONES. jewelry settings, cameos, sequins, beads. Send 10c for illustrated Catalog. J & M Novelties, Dept. CC-4, Griffith, Indiana.

AT Last a fine 17 Jewel men's wrist watch Guaranteed For Life. Never a charge for repairs for the lifetime of this business. Send \$24.95 plus \$2.50 Fed. Tax or send \$5.00 balance C.O.D. and if not delighted return in 5 days for full cash refund. Timerite, Box 3124, Fayetteville, North Carolina.

68 TOBACCO & PIPES

DISPLAY your collection. Beautiful red-wood wall type pipe rack. Rush \$1.00. Beiswinger Co., 111 Prospect, Kirkwood, Missouri.

100 CIGARS. \$4.95 postpaid. Packed 25 in vacuum tin. Ali Havana filler. Money-back guarantee. Others. Ace Mail Order Co., East Orange 2, New Jersey.

PIPE Smokers—Instantly break in new briar or meerschaum without tongue bite. Sweeter smoke for life of pipe. \$1.00 Bottle enough for 12 pipes. Pipe-Eze, Suite 220C, 229 South Broadway, Los Angeles 12, Calif.

CIGARETTES—Roll 200 guaranteed to please for 75c. Particulars free. Pete Moberly, Box 865, Owensboro, Kentucky.

69 FOR THE HOME

BESSEN Dishwasher, Automatic, Portable. Nationally advertised low \$69.50 retail price. For literature write Albert Co., Dept. 8, 1409 Farwell Ave., Chicago 26, Ill.

BE Safe. Look through the new Kik Door-Interviewer without being seen yourself. Optical design provides wide vision. Fits all doors 1-2". Obtainable in black, white, brown. Easily installed. Only \$1.50 prepaid. Money-back guarantee. Free further information. Scandia Direct Sales, P.O.B. 582, Vancouver, B.C., Canada.

HOME Supplies All Kinds. Save Money. Send Dime. Box 89, Troy 1, Ohio.

70 OF INTEREST TO WOMEN

WOMEN Who Sew! Invisible Reweaving is for you! Up to \$10.00 profit per hour in spare time. Earn as you learn. Pay as you earn. Huge demand guarantees earnings! Details free. Fabricon, Dept. D-3, 8342 S. Prairie, Chicago 19, Illinois.

MAKE Money Introducing World's cutest children's dresses. Big selection adorable styles. Low prices. Complete display free. Rush name. Harford, Dept. J-4341, Cincinnati 25, Ohio.

71 FOR SALE MISCELLANEOUS

TANNED Cougar Hides \$5 per foot. M.O. C.O.D. Lyle Simpson, Stonyford, Calif.

50 DOUBLE Edge Blades and Mirror—\$1.00. Barry's, 12 Doyle, Lawrence, Mass.

72 WANTED MISCELLANEOUS

SCRAP Mercury (Quicksilver) containers supplied. Tantalum—Bismuth—Tungsten. Metallurgical Products Co.—Established 1909, 35th & Moore Streets, Philadelphia 45, Pa.

USED Books Bought. List for Dime. Books. Box 63, Lexington, Kentucky.

73 WEARING APPAREL

FREE Catalog of clothing for Big Men—Waist 46-66; neck 17-22. Burns-Martin, Dept. 438, 121 Summer St., Boston 10, Mass.

74 PLAYS, STORIES, ETC.

ACTS. Plays, Skits, Blackouts, Parodies, Monologues! Catalogue Free! "Writers," Box 575, Hollywood 28, Calif.

75 TATTOOING SUPPLIES

TATTOOING Course and Supply Brochures. 25c. Zeiss School, 728 Lesley, Rockford, Illinois.

76 DRAWING, SUPPLIES & EQUIPMENT

DRAFTING and artists' materials catalog—thousands of items—25c (deductible first \$2 order). Gordon's, 219 Madison, Chicago.

ATTENTION: Draftsmen, Engineers, Students—Limited openings for agents. Take orders in spare time on drafting supplies. Attractive commissions. Alvin Company, Windsor, Conn.

LEARN Drawing 20 lessons, 147 beautiful pictures. \$1.00 complete. Aldcroft Studios, 1206 Maple, Los Angeles, Calif.

77 TREASURE FINDERS

TREASURE Hunters! New 11-pound featherweight Model 101 locator for gold, silver and minerals. Money-back guarantee best available. Also Geiger Counters for uranium prospectors. Complete information free. The Goldak Company, 1540 W. Glenoaks Blvd., Glendale 1, Calif.

SELECTIVE metal and mineral detector. Revolutionary design. Distinguishes metals from black magnetic sands. Readily detects metals under salt water. Also Geiger Counters. Free literature Gardiner Electronics Company, 2018 N. Dayton, Phoenix, Arizona.

GOLD, Silver, Metal Detectors, Geiger Counters for Uranium, Mineral rights. Sensational new fully guaranteed models. None Finer. Information Free. Detection Co., 5631 Cahuenga Blvd., North Hollywood, California.

TREASURE—M-Scope Geiger Counters—Mineral Locators. Why buy something inferior when you can buy the best at a lower price? Backed by years of experience. Fully guaranteed by factory. Detects minerals, metals, gold, silver, coins. Payment plan available. Proven superior performance. Free 16 page illustrated booklet. Fisher Research Lab., Inc., Palo Alto, Calif.

PLANS for Inexpensive Metal Detector and List of over 100 Lost Treasures. \$1.00 complete. Don, 316 N. Jefferson, Elk City, Oklahoma.

78 WATCH REPAIRING

WATCHMAKERS'—Jewelers' complete informative catalogue 20c. Bengal Company, Culver City, California.

WATCH and clock repairing books for hobbyists. Free information. North American, Dept. 23-C, 2320 Milwaukee, Chicago 47, Illinois.

WATCHMAKERS' Journal contains instructive articles for watchmakers and students. \$1.00 year. Sample copy 20c. Dean Co., Peninsula Station, Daytona Beach, Florida.

10 HIGH-grade Swiss Ladies' and Gents' Wristwatches needing minor repairs. \$18.00. Write for prices. B. Lowe, Holland Bldg., St. Louis 1, Mo.

WATCHES cleaned, completely repaired \$4.00. Morton, 14885 Holden Way, Los Gatos, California.

79 MISCELLANEOUS

OICU nor your friends know how the harmless King Snake kills Vicious Rat-tler; \$1.00 brings snap photo; \$2.00 8x10; \$5.00 beautifully handtinted in natural colors. XYZ Ranch, P. O. Box 5142, North Long Beach, Calif.

OUTDOOR Toilets, Cesspools, Septic Tanks cleaned, deodorized with amazing new product. Safe, easy, economical to use. Double waste digesting action. Saves digging, pumping. Satisfaction guaranteed by 150,000 customers. Postcard brings Free sample. Burson Laboratories, Dept. E-53, Chicago 22, Ill.

PERSONALIZE—Decorate glassware. Etch designs and monograms easily and safely with Etchall in three minutes. Send \$1.00 for trial kit. Etchall, Inc., Columbia 27, Missouri.

BUY Wholesale thousands nationally advertised products at big discount. Free "Wholesale Plan". American Buyers, 629-SS Linden, Buffalo, New York.

LEATHERCRAFT For Pleasure or Profit. Make easy-to-assemble purses, belts, gloves, woolskin toys, 100 other items for gifts or to sell. Send 10c today for big catalog. Largest leathercraft stock in U. S. J. C. Larson Co., 820 S. Tripp, Dept. 2955A, Chicago 24.

FOR hobby gifts—make and sell artificial flowers, corsages, chenille dolls, jewelry, leathercrafts. Starting kits, wood-fibre, leaves, rhinestones, findings. Wholesale catalog. 10c. Profitkrafts, 4509T267 Lorain, Cleveland 2, Ohio.

BIRTHDAY Party Sign. Happy Birthday Dear Mother or any name. Beautifully embossed on heart shaped cardboard. \$1.00 (No Stamps). Budarin, 1351 S.W. 4th Street, Miami, Florida.

BUY vitamins direct. Amazing savings. Catalog free. Matoska, White Bear Lake, Minn.

BIG interesting mails three months 25c. year \$1.00. Harvey Teeple, Decatur, Ind.

CHURCHES. Organizations receive \$130.00 12 card tables free. Unique Gift Plan, 28 East Second Ave., Pine Hill, N. J.

RECEIVE Magazines, samples, catalogues. Mails from everywhere. Offers, hundreds. Get listed 25c. Rorick, Box 86, Cincinnati 26, Ohio.

LUMINOUS Paint—Glow in the dark. Sky blue, yellow, green, green-blue. Indoor and outdoor. Waterproof. Weatherproof. 2 oz. jar \$1.00 postpaid. Nite Glo, Box 490, New Haven 2, Connecticut.

REAL inside secrets. Wholesale sources, tips, plans, ideas. Write now! "Revealer", Box 378, New York 53, New York.

POSITIVE Elevations, slopes, drainage, with Stratex surveying hand level. \$11 postpaid. Instantly survey right angles with engineer's optical square. \$25 postpaid. Fully guaranteed. Free instructions. Stratex, 1861P Hillhurst, Los Angeles 27.

PANNING Gold lesson—Catalogue Beginners supplies. Mining Books. Maps. "Where To Go" Free. Old Prospector, Box 792D2, Lodi, Calif.

300 **BIG** Mails guaranteed, samples, offers, plans, propositions, 12 months listing, \$1.00. (refundable). Wright Publications, 2276 Hubbard, Memphis 8, Tenn.

RECEIVE Big Mails, Catalogs, Samples, Offers, etc., 10c. Deluxe Listing, Year 25c. States Company, Dundee 27-PS, Michigan.

STUDY Wildlife, game warden, fish, forestry and patrol service. Details free. Write Delmar Institute, D16, Whittier, Calif.

YOUR Leather Jacket renovated expertly. Free circular. Berlew Mfg. Co., Dept. 7, Freeport, N. Y.

CALIFORNIA Redwood Initial Pins. Ideal Gifts. \$1.00. Box 526, Danville, Calif.

AUCTION: Jewelry, Appliances, Sports, Office equipment, Paint, Miscellaneous. List mailed. Auctioneers, 5976 Cole Brilliant, St. Louis, Mo.

80 PERSONAL

DETECTIVE'S Opportunities. Detective particulars free. Write. Wagoner, P-125 West 86th, New York 24.

PSORIASIS Victims: Hopeless? New Discovery! Free Trial offer. Write Pixacol, Box 7097-S, Cleveland, Ohio.

"**HOW** Can I Find Out?" You Can! Information confidentially developed. Any matter, person, problem. World-wide. Officially licensed. Established 1922. William Herman, 170 Broadway, New York.

BORROW by mail. Loans \$50 to \$600 to employed men and women. Easy, quick. Completely confidential. No endorsers. Repay in convenient monthly payments. Details free in plain envelope. Give occupation. State Finance Co., 323 Securities Bldg., Dept. Z-14, Omaha 2, Nebraska.

LATEST Methods treating Piles, Fistula, Colon-Stomach disorders. Write for free book, McCleary Clinic and Hospital, E344, Excelsior Springs, Mo.

EFFICIENCY Chart and Fabulous "Mental Tonic." F. Phillips, Scientific Living, Inc., Box 910, Scranton, Pa.

INCREDIBLE! Unprecedented! Become a mental superman overnight! Floor everybody! No studying! "Memoprop" does all your thinking! It's uncanny! Revolutionary! Write: Bijou, Box 1727-V3, Hollywood 28, Calif.

OIL Portrait, (14x18) from photograph. \$25.00. Color eyes, hair. Don Woods, 370 Washington St., New Britain, Conn.

IF you are nervous, write The Herbmater, Forestville 8, Virginia.

MORE youth. Longer years. Easy secrets mastery. Inquire now. Alfafla, 2606P University Place, Washington, D. C.

WANTED Partners Patented Items. Dr. Roberts, III, N. Stevens St., Valdosta, Ga.

TIES Tired? Send four with \$1.00, receive 4 others. Shasta, 139 Essex Street, New York City.

MARKED Cards, Instructions, tricks or games, \$2.00 Deck. Barry's, 12 Doyle, Lawrence, Mass.

INFORMATION—any matter—subject—Reasonable. Peter Brady, Aberdeen, South Dakota.

BIBLE reveals Time Of End. Free. Write: Harvest, Jefferson City, Missouri.

HAIR going? Fight it, send \$2.00 for membership to American Baldness Society, 702 Second National Bank Building, Saginaw, Michigan.

LETTERS reairmailed from Havana \$1.00. Jose Rabade, Apartado 3404, Havana, Cuba.

CAREFUL people check engine oil and tire pressure frequently—and yet your blood pressure varies hourly with even greater significance. Hypertell pulsometer, a pocket, pen-sized instrument may warn you of impending danger. Sent postpaid and guaranteed for \$3.00, or write for free descriptive folder. Hypertell, Box 336, Coulee Dam, Washington.

LETTERS remailed. Fool friends. Cleveland postmark. 25c each, Box 7098, Cleveland 28, Ohio.

JOIN National Guild Hypnotists Details, Hypnodiscs etc. 10c. Guild, 48B Harlem, Dorchester 21, Massachusetts.

"**X-RAY** Mind." Stupendous mental science. Completely describes and analyzes the 38 different types of men and women. Reveals the swift, sure-fire methods of influencing them. Being profitably applied throughout North America in the 23 leading professions, businesses, jobs. Entire course, \$2.98, Krishnar Institute, 1912 Lincoln-Park-West, 191-P3, Chicago 14.

AVOID Heart Trouble. Keep young. America's best formula . . . \$1.00. Science A. Box 402, Canton 1, Ohio.

"**INTERESTING** Mails"—25c keeps your mail box full three months. Bentz, Desk-1/6, Chatawa, Mississippi.

PALM Beach Postmark! Letters, Cards remailed 25c each, Box 1104, West Palm Beach, Florida.

REDUCING Calorie Book—Send 25c—Free Additional Reducing Information, Gyro-Belt, 6920 Market, Upper Darby 33, Pa.

MEXICAN Law, General Practice Attorney, 1203 Arizona Street, El Paso, Texas.

PILES! Tormented with the irritation and discomfort due to piles? Write for free important information. Mutal Products, Box 836-P, Cleveland 22, Ohio.

LETTERS remailed Dayton, 25c. Kodachrome post cards 15c. Aviation Capital, P.O. Box 573, Dayton 9, Ohio.

BAD Memories Made Good! Scientific concentration course (406 pages) does it! Only \$3.00. Speedmail Press, 299 Broadway, New York 7.

LETTERS remailed Montreal postmark 25c. Confidential receiving-forwarding address, F. Fenwick, 127 St. Louis, Lakeside Heights, Montreal, Canada.

REMAIL! San Quentin postmark. Also San Francisco, Oakland, and other cities in Bay Area, 25c, Box 396, San Rafael, Cal.

CONSTIPATED? Free sample will prove Nudge, new "miracle regulator," completely different—safest, smoothest, easiest way to outwit constipation. Regime Products, Dept. C-1, 245 S. Watkins, Memphis 4, Tennessee.

\$51,000.00'S!!—"Winning Prize Contests"—400 pages—\$5 postpaid. Volinn-skey's, 1411 Stebbins, New York 59.

Would YOU Like to Make \$1,000 A MONTH?

That's what Stanley Hyman made selling the amazing new **PRESTO** Fire Extinguisher!

OVER 11,000 people died in fires last year. An eager public has been waiting for a practical new kind of fire extinguisher. Now it's here! Tiny "Presto" does the job of bulky extinguishers that cost 4 times as much and are 8 times as heavy. Ends fires fast as 2 seconds. Fits in palm of hand. Never corrodes. *Guaranteed 20 years!* Sells for only \$3.98!

You can make good money showing this new discovery to civil defense workers, owners of homes, cars, boats, farms, etc. and to stores for re-sale. Stanley Hyman reports making over \$1000 a month. H. J. Kerr, \$20 a day. William Wydallis, \$15.20 an hour.



Science's New Midget Miracle "PRESTO"

What's the secret of "Presto's" amazing power? It's a new war-born wonder chemical found to be 1.5 to 6 times as effective as chemical contents of other extinguishers on an equal weight basis. Makes possible, for the first time, an extinguisher that is small, light, and amazingly effective. Help supply the demand for this important new discovery. Write for FREE Sales Kit. No obligation; no capital required. But don't put it off. Every day you hesitate may cost you \$10, \$15, or even \$50 you could be making. Send postcard or letter to: **MERLITE INDUSTRIES, Inc., Dept. 113, 201 East 16th St., New York 3, N. Y.** IN CANADA: Mopa Co., Ltd., 371 Dowd St., Montreal 1, P.Q. (If you want a regular Presto to use as a demonstrator too, send \$2.50. Money back if you wish. Returnable for FREE refills.)



STANLEY HYMAN



HAIRVAC

New Massage Instrument Keeps Hair, Scalp, Clean and Healthy

Removes embarrassing dirt and dandruff . . . promotes hair health with electrical massage. Vibrating rubber fingers loosen, vacuum suction removes, harmful scalp wastes. Soothing, enjoyable rotary massage—3000 pulsations per minute—tones up scalp, stimulates circulation, distributes vital natural oils, makes scalp tingle for hours. **VISKON** patented disposable filter—easily inserted and removed—traps dirt and dandruff . . . immediate visible proof of Hair-Vac's effectiveness. **USE HAIRVAC DAILY** to keep hair handsome, glossy, better looking . . . scalp clean, healthy, invigorated. Hand-size, easy to use, convenient at home or away. Wonderful with a wave; no resetting ever necessary. No water, soap, oil—nothing to dull the natural beauty of your hair. Already in use in thousands of homes. U.L.-approved, AC only. Complete with 100 filters, only \$11.95, postpaid. Order by mail today—check, money order or C.O.D. Immediate delivery. Guaranteed, of course.

HUGH PAULK

304 Kansas Ave., Dept. 234, Topeka, Kansas



Beauty in 3rd DIMENSION

Our figure pictures come to life in breathtaking 3rd Dimension when viewed through the magic viewer. The figures actually seem to step right out of the frames in third dimensional depth and beauty. Send \$1.00 for Magic Viewer, and complete SAMPLE assortment. ☆ **HAVE FUN!!** ☆

HOLLYWOOD SALES
3414-U West Magnolia Blvd.
Burbank, California

more fishing fun! LESS MAINTENANCE ...

STARCRAFT



ENJOY years of fishing in a safe, easy-to-handle *Starcraft Boat*. Rugged, lightweight construction of magnesium, aluminum, stainless or galvanized steel. Low prices. Every desirable feature. Write for free catalog today. Dept. DD-3.

STAR METAL BOAT CO. • GOSHEN, IND.

JITTERBUG • CATCHES MORE FISH

Noisy surface bait. World's best hooker — day or night. Gurgling, paddling action of the double-lobed lip makes fish strike hard. 5/8 oz. or 3/8 oz. or 1/4 oz. spinning size \$1.25. Musky size \$2.00.

FRED ARBOGAST & Co., Inc., 2343 W. North St., Akron 3, Ohio

FREE WRITE TODAY FOR YOUR BIG FREE ARBOGAST COLOR CATALOG — FULL OF PICTURES OF CATCHES

**SPORTSMEN • CAMPERS • BOATSMEN
TOURISTS • PICKNICKERS • WORKERS**

COOK ANYWHERE—with Safety!

—with this world-famous portable safety stove, the OPTIMUS, imported from Sweden. Burns kerosene; no wick, no smell, no smoke; no sooty utensils to scour!

Clear, blue gas flame gives steady intense heat—instantly (boils water in 3½ minutes). One filling lasts hours—costs less than coal! Rugged construction, polished brass. Weighs only 2 lbs., 6 oz. 8" high. Dismounts to fit handy, square box.

An unbeatable value at only \$7.49 prepaid, direct to user. Don't wait to enjoy good, hot food wherever you are. Send \$7.49, ck. or M.O., for #45 Optimus Stove. Immediate shipment guaranteed. Address—

Dept. 2-P ROBERT E. MILLER & CO., Inc., 35 Pearl St., New York City 4



**ONLY
7.49
PREPAID**

I'LL GIVE YOU THESE **AUTO SEAT COVERS**

AS A BONUS

And Pay You Well
Besides If You Will
Show Them And Take
Orders From
Car Owners
In Spare Time
Only!



**JUST 1 SALE
A DAY CAN
PAY YOU UP TO
\$16.50 DAILY
IN PROFITS!**

Want extra money—plenty of it day after day? Then rush your name and address at once for Free Sample Outfit that will start you taking orders from car owners everywhere for Key expertly tailored Auto Seat Covers. EXCLUSIVE NEW PATTERNS to fit every make and model car. No one can compete with you, in wide choice, in quality—and

in expert tailoring that makes covers fit like a pair of gloves—and when you quote prices that are only a fraction of what the customer expects to pay, brother! You make money hand over fist writing up the fast orders! Line includes nationally advertised sensations like BLACK EBONY Saran, beautiful BAMBOO, brilliant FIESTA, colorful BULL FIGHTER PLAIDS, plus many other exclusive patterns to choose from, all at unbelievably low prices.

RUSH NAME for FREE OUTFIT

Give **MAKE, YEAR and MODEL of YOUR CAR**

No experience needed. Make all the extra money you need easily just by showing. Every car owner a "hot" prospect. YEAR AROUND STEADY PROFITS. No investment to make. Actual seat covers given to producers as a bonus for OWN USE! Write for Free Selling Kit valued at \$2.00 and actual samples TODAY!

KEY PRODUCTS CORP., 800 N. Clark St., Dept. 6-C, Chicago 10, Ill.

DYNA-MITE POCKET RADIO

POWERFUL! PERSONAL! PRACTICAL!

- Covers Standard Broadcast Band
- Sensitive Ferrite Tuned Coil
- Batteries and Parts Fit Within Ivory Plastic Case
- Tiny Acorn Low Drain Tube
- Loud Clear Tone
- Genuine Formica Chassis
- No Antennae Used for Local Reception
- No Ground Connection Needed
- Long Range Reception Guaranteed
- Picture Diagramme for Radio Beginners.



\$5.99
postpaid

"This neatly engineered little KIT was designed to give you a real personal portable radio that you can enjoy anywhere without disturbing others. Use it on camping trips, in bed, in your office or just anywhere. Remember this is not a weak crystal set, it is a POWERFUL VACUUM TUBE receiver that will give you good local and long distance reception. SET less batteries ONLY \$5.99 postpaid! C.O.D. orders accepted with \$1.00 deposit within United States and possessions. If you desire batteries, we can supply them at only \$1.50 per set INCLUDING EXTRA "A" BATTERY or you may obtain them from your local hearing aid concern."

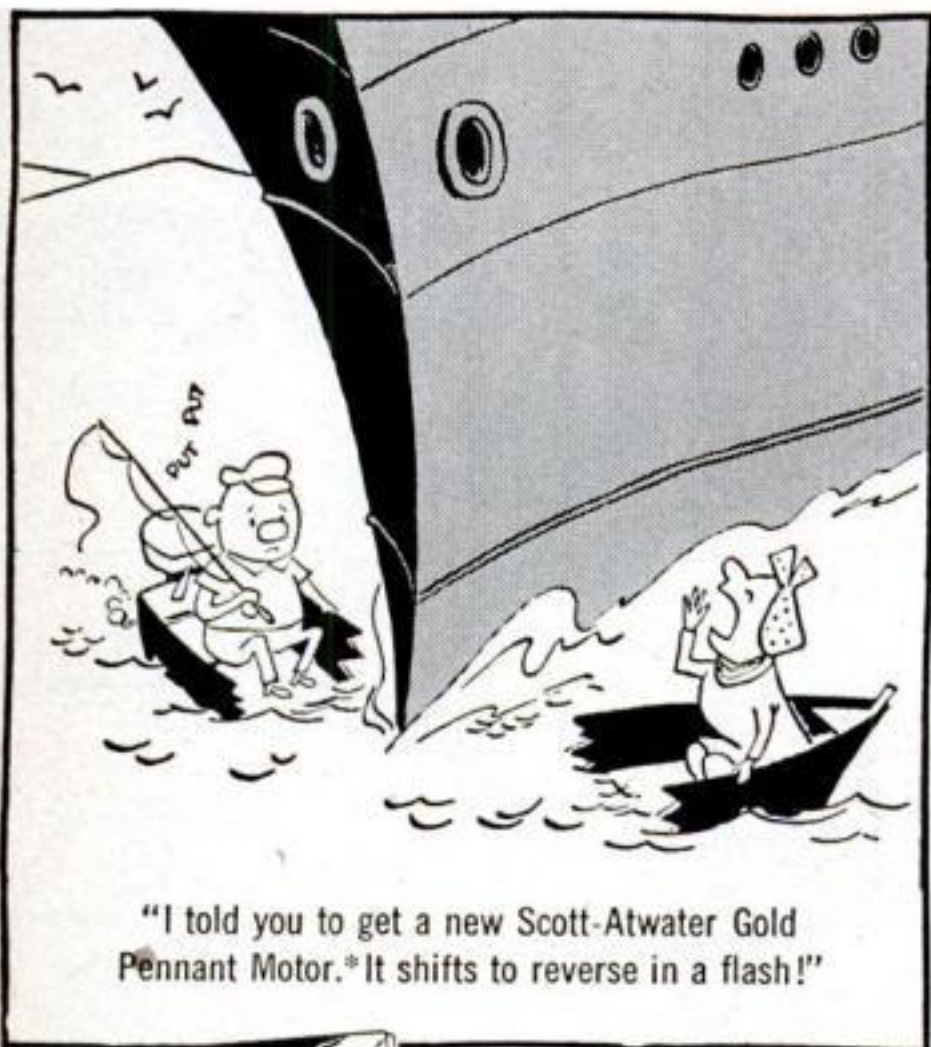
1500 Ohm Alnico Magnet Receiver \$1.45 when Purchased with Kit. ALL PARTS FULLY GUARANTEED.

Order Today at this Unbelievable Low Price!

PRECISION ELECTRONICS

DEPT. 1

PLACERVILLE, CALIF.



"I told you to get a new Scott-Atwater Gold Pennant Motor.* It shifts to reverse in a flash!"

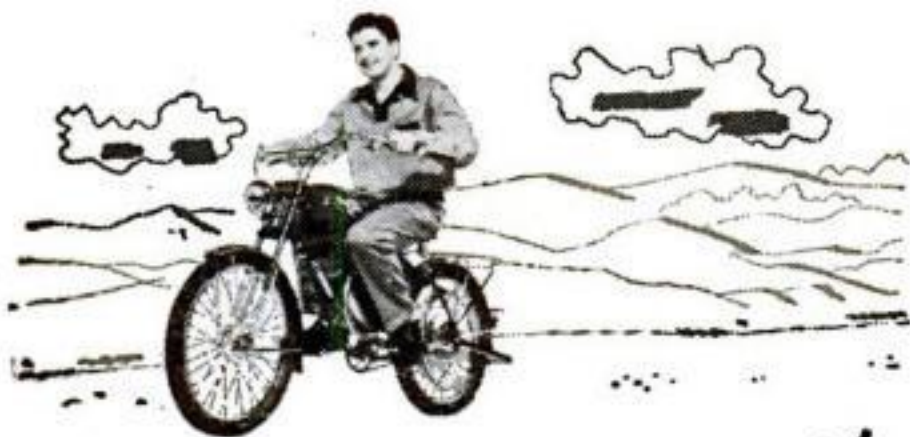


WRITE FOR FREE FOLDER!

Read all about the sensation-ally new Gold Pennant outboards. New in styling! New in features! New in performance! Write to: Dept. P-33, Scott-Atwater Mfg. Co., Inc., Minneapolis 13, Minn.

*7½ and 10 HP with Shift, "Stowaway" Tank, Twist Grip Speed Control

have your own **DELUXE TRANSPORTATION**



get a **WHIZZER** NOW!

Be free to go anywhere! Your great new 1953 Whizzer will take you comfortably, swiftly, economically. You're your own boss with a Whizzer.

Lead your friends to more fun! Your rugged dependable Whizzer motor bike will put you out in front, the envy of all your friends.

Ride a Whizzer today. See your Whizzer dealer. Learn how easily you can own a Whizzer, how little it costs to operate, how much real pleasure it can mean.

• 3 h.p. • 5-35 m.p.h.
• up to 100 miles per gallon

Free illustrated booklet on request.

WHIZZER MOTOR CO., 312 S. Sanford, Pontiac, Mich.

Wagemaker's WOLVERINE BOATS

Enjoy the time of your life with a 'Wolverine'. A model to suit your every boating need. Free literature.

WAGEMAKER CO.
 Grand Rapids, Mich.

Dept. 36

WHAM-O SPORTSMAN *

\$1.50 35-LB. PULL!

HITS LIKE A RIFLE—KILLS RABBITS, SQUIRRELS. Powerful, silent, accurate. For hunting, target, routing pests. Sportsman's choice sold world over!

HUNTING SLINGSHOT



Heavy duty 7" ash stock. 40 steel balls, extra rubber, target. GUARANTEED. At dealers, or send \$1.50 to Wham-O Mfg. Co. Box 88, South Pasadena, Calif.

* Professional model of Nat'l Slingshot Assn.



FIREARMS & SWORDS

You don't want to miss our new thrill-packed catalog. Fascinating background and illustrations of 1300 authentic pieces. Exceptional values in hard-to-find items. For your 120 page catalog #28 simply send 50c to cover postage and handling with your name and address.

ROBERT ABELS, Box PS, 860 Lexington Ave., New York 21, N. Y.

Brand New NYLON COVERS

for outdoor storage of cars, boats, machinery, equipment, etc.

only 7 lbs.

Strongest, lightest covers ever made. New DuPont Nylon with 1 side rubberized and the other of soft nylon, cannot scratch car surface. Will not harden, crack or mildew. Folds away easily. Secured with heavy elastic. Protection against wind, rain, sun, snow, frost, etc. 15-day money-back guarantee. Material very many times stronger than regular plastics. Nylon tarps to order, heavier weight, double coated, brass grommets, 9c sq. ft.



Standard Size

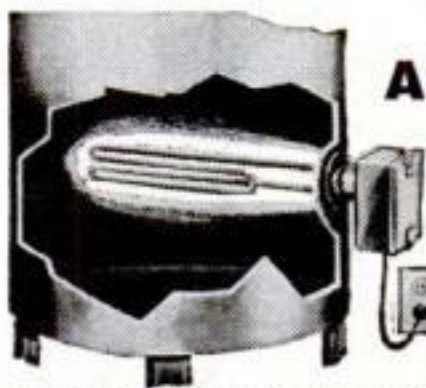
\$17.95

Larger Size for Cad., Etc., \$2.95 extra plus 80c postage. Give Car Model.

DEFENDER TEXTILE CORP., 317 Canal St., Dept. PS, N. Y. 13, N. Y.

New Low Cost Electric Water Heater Gives You

HOT WATER AUTOMATICALLY



From Your Present Tank!

- No dirt, grime, soot, flame!
- SAFE! Every part UL approved!
- Install in 10 Minutes, or less!
- No new tanks or plumbing required.
- Works automatically—saves on fuel bills!

New, UL approved LECTROMATIC changes gas, coal or oil-burning water heater into modern ALL-ELECTRIC unit! Turns on automatically when needed, shuts off automatically when water is heated. To install, simply shut off water.

Complete—Ready to Plug In—Only \$19.95

Remove plug from water tank. Screw LECTROMATIC into opening (as shown), then PLUG IN! Plenty of hot water all day long. Uses only ¼-½¢ electricity per gal. of hot water. Temp. adjustable from 100 to 180 degrees. Save postage. Send check or money order for \$19.95 now. Money back in ten days if not delighted. Full one year guarantee! ORDER NOW!

COLLOID EQUIPMENT Co. Inc.

Dept. PS-3, 50 Church Street NEW YORK 7, N. Y.

Invisible Gloves Protect Hands on Dirty Jobs

Just rub on Du Pont PRO-TEK hand cream before you start dirty, grimy repairs, painting or shopwork. It acts like invisible gloves. When you finish, wash your hands—and wash away grit, grease and stains. Leaves hands soft, clean, stain-free. Get PRO-TEK for about 49¢ at drug, hardware, auto supply stores.



DU PONT PRO-TEK®



Better Things for Better Living
...through Chemistry



FISHERMEN
Make your own
SINKERS
JIGS SQUIDS
CASTING
and **SPINNING**
LURES

It's fun, it's easy with Sweet's
ALUMINUM MOLDS

Molds for fresh and salt water fishermen. Handled and hinged for easy, fast operation. Over 100 types, 500 sizes. Write for FREE catalogue TODAY.

AS LOW AS
295

per mold

SWEET'S MOLDS
TONAWANDA 31, N. Y.



CAR OWNERSHIP COSTS LESS WITH A HULL AUTO COMPASS

It's easy to make a wrong turn without a Hull Auto Compass, drive blocks or miles before getting straightened out. Wasted miles add up amazingly . . . which is why a Hull Auto Compass pays for itself over and over. Write for local dealer's name, free literature.



HULL MFG. CO.

P.O. Box 246-E3
WARREN, OHIO



PEEL 6-10 FT. OF PAINT PER MINUTE

Down to Bare Wood...

PAINT DOZER

\$9.95

complete



You can peel paint fast and easily! With Paint Dozer you soften and peel old paint in one continuous stripping action. You get a clean, bare surface ready for repainting. And, there's no hard scraping, no messy or dangerous chemicals or flame!

In tests, Paint Dozer peeled 43 coats of paint in *one* stroke! Flat, curved or grooved surfaces . . . house siding, boats, cabinets, floors, woodwork . . . you can peel them all better and easier with Paint Dozer!

Paint Dozer operates on 115-120V A.C. or D.C. household current. Its sturdy stamped-steel casing and heavy-duty ceramic element assure long life, even under daily use.

Order from your hardware or paint store, or write today for fast delivery. You must be satisfied or your money back!

LECTRO DIVISION, OTTO KONIGSLOW MFG., CO.
Dept. 3-A, 2189 West 26th Street • Cleveland 13, Ohio



Graflex Prize-winning Photo
by Charles Hoff



Get Out
of the
"Snapshot
Class!"

GRADUATE TO A...

Graphic

● If you've ever snapped a picture with a folding camera, you can shoot with a Pacemaker Graphic. And make far better pictures, too, for there's not a challenge these rugged cameras can't meet. That's why they're the overwhelming favorite of press photographers—men who live by the lens. Have your Graflex dealer show you both the Speed and Crown Graphics—each in three sizes. And see the Century Graphic, now only \$108 with coated f/4.5 lens. Many dealers offer budget terms as low as \$2.00 weekly.

Graflex Inc., Dept. 7B

Rochester 8, New York

Please send the new FREE 48-page booklet.

Name _____

Street _____

City _____

County or Zone _____ State _____

GRAFLEX® Price-Winning
Camera

NEW

COMPLETELY

Book for Fishermen

FREE!

Every fisherman needs it! 100 pages of fishing tips—how to bait, fly and spin cast—Skish rules—fish pictures—tackle. Write now. FREE.



New



FreeCast® Reel with Speed Control
No thumbing or backlashes. Adjusts for weight of lure and wind. No. 666—\$11.
South Bend Bait Co., 892 High St., South Bend, Ind.

SOUTH BEND *A Name Famous in Fishing*

SEA SHELL KIT BOAT
only \$39



You'd expect to pay twice \$39 for a rugged yet light (65 lb.) boat like the SEA SHELL. Ideal for duck-hunters, fishermen, all-round use.

FUN TO ASSEMBLE FROM KIT

You put the SEA SHELL together in a few pleasant evenings—and save money. Kit includes pre-cut marine plywood and wood parts, brass screws, seam compound, full instructions. Easy to assemble—only ordinary hand tools needed. Beam 4 ft., depth 16 ins. More than 32,000 in use. Fully guaranteed. Additional kit available to convert SEA SHELL into a lively performing sailboat.

Free booklet; or send \$39 and Sea Shell kit will be shipped immediately, freight collect.

Sea Shells of Branford
7370 N. Main Street
Branford, Conn.

In Canada
Roberts-Ross, Ltd.
Orillia, Ontario



*The night was dark, his lights were dim
But he could still see LUMA-RIM*

See and be seen with **LUMA-RIM**



See and be seen with LUMA-RIM! It is a **PROVEN FACT** that LUMA-RIM, the bright red reflective wheel trim, puts drivers of on-coming cars **ON THE ALERT** when your car is crossing street or roadway or leaving curb at night. **PRECISION** die-cut ring of finest material. (Tiny glass beads bonded to plastic.) Reflects light from any angle. Easy to apply. Lasts for years. (Road tested.) LUMA-RIM **FILLS A NEED** for a distinctive light for the sides of cars that is useful and attractive. For 15" and 16" rims. Order by tire size. Complete set for four wheels, postpaid. **\$2.95**

© L-R Corp.

LUMA-RIM CORP., Pacific Bldg., Dept. E-2, OAKLAND 12, CALIF.



GIANT BALLOONS

Genuine Govt. surplus weather, target balloons. For **FUN** or **PROFIT**. Great sport in the backyard; or for parties, picnics, dances, fairs. **MONEY-MAKERS**. Use these balloons to attract crowds to civic events, school functions, conventions, exhibitions, trade shows. Special purchase makes these low prices possible.

3 ft. dia. **49c**—6 ft. dia. **79c**
13 ft. dia. **\$1.59**—20 ft. dia. **\$1.95**
Calif. residents please add sales tax.

WAR ASSETS DIV., Volume Sales Co.
Dept. S-3-53, 3930 Sunset Blvd. Los Angeles 29, Calif.



AMAZING NEW POCKET SIZE RADIO

NO TUBES. BATTERIES OR ELECTRIC "PLUG-INS" NEEDED. "TUNES IN" MOST LOCAL RADIO STATIONS WITH STATIC-FREE CLEAR TONE. Has new perma-crystal diode and **TINY SELF-CONTAINED SPEAKER PHONE**—A marvelous real tiny pocket size radio to take with you anywhere you go—**FOR REAL FUN AND ENJOYMENT. GUARANTEED TO WORK** and should last for years! **SEND \$1.00** (cash, m.o., c.k.) and pay postman \$1.99 C.O.D. postage or send \$4.99 for p.p. delivery. **COMPLETE** ready to play. By mail only from:

MIDWAY COMPANY
DEPT. PPS-3 KEARNEY, NEBRASKA

Make Money
SELLING
Eshelman
Tractors
and doing
GARDEN
WORK

RAKES
FLOWS
CULTIVATES
HARROWS
HAULS
SPRAYS
SAWS
DOZER
MOWS
CUTS
ROLLS
TILLS
SNOW PLOW

ESHELMAN

FOR BETTER
LAWNS
and **GARDENS**

Also Power Reverse.
Women Can Operate It.
Free Catalog. Write
nearest branch:—
ESHELMAN CO. Dept. 43
119 Light St., Balto. 2, Md.
333 N. Michigan Ave.,
Chicago 1, Ill.
105 Lake St., Reno, Nev.

Small-Tough-

Just right for carrying or storing — it's palm size! Made of heavy gauge metal. Switch glows in the dark. Uses 2 standard 1 1/4" batteries. See your dealer . . . **\$1.89** less batts.

DELTA ELECTRIC CO., Marion, Ind.

Delta BUDDY LITTLE ELECTRIC LANTERN



PRESTO! ANYONE CAN MASTER GLAZE



LEAVES HARD GLASS-LIKE FINISH
EASY TO APPLY
PROTECTS THE SURFACE
NO SMEAR OR STREAKS AS WITH WAX
LASTS SIX MONTHS TO A YEAR
SEALS THE PORES OF THE SURFACE
WILL NOT FINGER-MARK
NO OILY FILM AS WITH POLISH
SAVES YOU MONEY

Car Owners! Meet Master Glaze—the sensationally different luster for new and used cars! Not a wax—not an oil polish—not a paint!—nothing that “smears” over the surface.

MASTER GLAZE is a unique discovery—a creamy liquid—quick and easy to apply! Gives a hard, glass-like surface. Even gasoline cannot dull it! Lasts six months to a year! Amazing luster—beautiful, sparkling clean and brilliant! Doesn't finger-mark—doesn't smear! A match box full glazes an entire car. Seals the pores—protects! **NOTHING LIKE IT!**

AGENTS

An unusual opportunity! Quick, flashy demonstrator. Big profits. Good territory. Write today!

FREE SAMPLE

Just send your name and address to

MASTER GLAZE CO., 7720-761 W. Harwood Ave., Milwaukee, Wis.

SHIP MODEL KITS



Largest supply in New England. Fittings — Blueprints — Books. All prices. Write Dept. PS53. BIG ILLUSTRATED CATALOG 25c

JAMES BLISS & CO., INC.

342 Atlantic Ave., Boston 10, Mass.

121 Years in Business

LEARN TO THROW THE BOOMERANG

A Fascinating Sport and Unique Gift

SEND FOR YOURS TODAY

Flight Tested — Guaranteed to Return
Golden Red, Jade Green or Natural
with Story and Instructions \$2.00 ea.



CARVED by Postpaid
COL. JOHN M. GERRISH

4409-P S. W. Parkview Lane-Portland 1, Ore.



LIGHTWEIGHT

\$370.00

(Fed. tax paid, at factory)

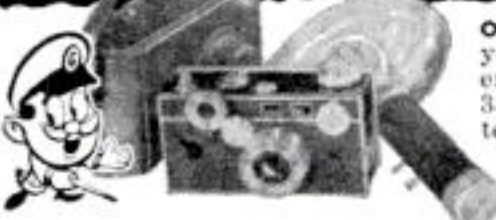
9.5 hp. 4-cycle. 3-speed. Foot-shift.
Over 70 miles per gal. Over 60
m.p.h. Write for free circular.

MUSTANG, Dept. PS

635 W. Colorado, Glendale 4, Calif.



\$9.00 DOWN DELIVERS Brand New 29 P.C. ARGUS C-3 OUTFIT
Balance as little as \$6.12 per month!



ONLY THE GENERAL could give you so much: Argus C-3 Camera, Flashgun, Carrying Case, 35mm. Projector, 4 Filters, Filter Holder, Sun Shade, 10 Flash Bulbs, 6 rolls Ansco or Kodak reloads, 1 roll Color Film, 1 - 30"x40" screen, copy of "This is Photography".

ALL BRAND-NEW \$9950 FOR ONLY

Use the General's famous "Pay as You Shoot" Plan

\$9.00 DOWN - BALANCE \$6.12 MONTHLY

Mail order with down payment and short note about yourself, your occupation, age, employer for last two years, and two references. Write today!

The GENERAL CAMERA CO.
Mail Order Div., Dept. P-33, Chicago 45, Ill.

WEEGEE'S SHORTCUTS TO PRIZE WINNING PHOTOFLASH PICTURES

#1...Fast focusing for action shots

BY WEEGEE

Prize-winning action shots crop up in a flash. There's no time to focus or use a range finder. Yet editors demand needle-sharp pictures. Contest judges accept no others. And there's no reason why you should settle for less.

This month I'll tell you how to focus in 1/200th of a second. How? Simply keep your camera set for 10 feet at f16 indoors. It's perfect for most pictures. Change to 6 feet at f22 for close-ups. When outdoors, I shoot 10 feet at f11 and 6 feet at f16.

I practice judging distances with two objects, one exactly 6 and the other 10 feet from my favorite chair. While relaxing or reading, I glance up and concentrate on these distances. Try it. With a little practice you can guess these lengths to the inch. But don't try to guess the entire scale on your camera. After 20 years I still can't.

Here's another tip. Cameras are a matter of choice. Flash bulbs are not. I and most of my friends who earn our living with a camera, insist on Westinghouse flash bulbs. Westinghouse bulbs give all the flash you need to freeze the fastest action. I even use them in my daytime shots. And I can honestly say my new book, "Naked Hollywood," could never have been done without dependable Westinghouse flash bulbs.

Fast focusing, plus other secrets I've picked up in 20 years of photography, are described in a new booklet, WEEGEE'S SECRETS OF SHOOTING WITH PHOTOFLASH. This booklet is not for sale. You can't buy it at any store. But you can get a copy with the wrapper from a carton of Westinghouse flash bulbs. Mail the wrapper and coupon below with 25c to cover postage and handling.

Next month I'll tell you how I get "naturalness" even in posed flash pictures.



Weegee, the world's foremost flash photographer. Author of NAKED CITY and the soon-to-be-released NAKED HOLLYWOOD.



YOURS FOR A WESTINGHOUSE FLASH BULB CARTON WRAPPER AND 25c

PARTIAL LIST OF CONTENTS

- Photographing Children
- Putting character into portraits
- Drama in news photographs
- Selling your pictures
- Photographer's place at a fire

YOU CAN BE SURE...IF IT'S **Westinghouse**

THIS BOOK CANNOT BE BOUGHT IN ANY STORE.
YOU CAN ONLY GET YOUR COPY WITH THIS COUPON.

WESTINGHOUSE LAMP DIVISION, DEPT. PS-3
Bloomfield, New Jersey

Rush my copy of "Weegee's Secrets of Shooting With Photo-flash." I am enclosing the wrapper from a carton of Westinghouse flash bulbs, and 25c to cover postage and handling.

NAME _____

ADDRESS _____

CITY _____ ZONE _____ STATE _____

SEE THE WORLD'S FINEST MOST COMPLETE LINE OF REAL PERFORMANCE BOATS!

JOIN THE FUN—SAVE 50%

PACKAGED BOAT KITS

EASY TO
ASSEMBLE



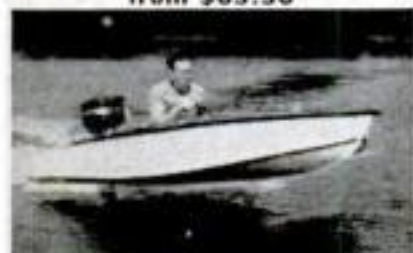
OUTBOARD
CRUISERS
from \$349.50



8 FT. PRAM KITS
from \$45.00



FISHING SKIFFS
from \$63.50



OUTBOARD RACERS
from \$119.95



SPORTSMAN MODELS
from \$132.50



INBOARD RUNABOUTS
from \$379.95

SEE 27 EXCITING NEW 1953 MODELS!

Dinghies, Skiffs, exclusive Pontoon Racers, sleek Runabouts, roomy Outboards, Speed Boats, Express Cruisers;

SEE HOW EXCLUSIVE FEATURES MAKE ASSEMBLY EASIER

Notched members fit and lock together. You can set up the basic framework without driving a screw. The shipping crate acts as a building jig. Preformed and grooved Mahogany side decks are easy to install. Mahogany deck panels just slide into place. It's sturdier, better looking and requires only a few fastenings. It's easier to finish.

SEE HOW ADVANCED DESIGN PRODUCES TOP PERFORMANCE

Tredonic "Air Ride" Bottom Design for efficient operation at slow trolling speeds or a smooth soft ride at top planing speeds. Monodronic "High Speed" Bottom Design plus Non-Trip Chines for amazing speeds plus superb handling characteristics.

SEND 25c FOR BIG 1953 CATALOG

Get all the facts. See how they're built, how they perform. Large model, action and construction photos completely present all 27 models. Specifications performance data, plus a complete line of MARINE HARDWARE, ACCESSORIES and PAINTS included.

OWN A BOAT OF CUSTOM QUALITY

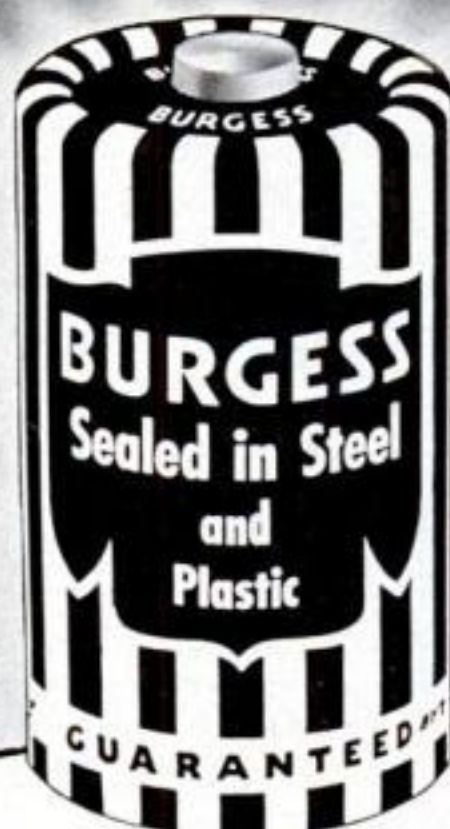
FRAMES, preassembled from Mahogany, ready to set up. DECKING, Precut and Preformed from mahogany lumber and marine plywood, ready to install. PLANKING, Precut from Boat Hull Grade Plywood Panels. BRASS FASTENINGS. ILLUSTRATED STEP BY STEP ASSEMBLY INSTRUCTIONS.

BOAT PLANS AND FULL-SIZE PATTERNS

Over 100 Modern plans and full size patterns. Racing classes, cruisers, inboards, outboards, sail boats. By famous designers. 6' to 30'. DESIGN CATALOG only 35¢. For Design Catalog plus boat building handbook send \$1.00.

CUSTOM-CRAFT (DEPT. B) BUFFALO 7, N. Y.

For Discriminating Users



Scientists, explorers and engineers choose Burgess Batteries where lives depend on battery power, because they are recognized as best by the experts. Insist on using Burgess Batteries in your flashlight. Burgess Battery Company, Freeport, Ill.; Niagara Falls, Can.

A Quality Dry Battery For Every Purpose

French DUELING SWORDS

Once used in deadly combat—now an exciting sport! Learn right at home. Fun—safe—educational. These swords are made of fine blue spring steel, polished metal

SET OF TWO \$3.98 post paid

guards, turned handles, rubber safety tips. Fencing teaches quick thinking, develops coordination, posture. Since the Middle Ages, Europeans have enjoyed the sport of dueling. "Now advocated by U.S. colleges. Set includes two swords and the booklet, "The Art of Fencing". Special price. MONEY BACK IF NOT COMPLETELY SATISFIED. At sporting goods dealers or send \$3.98 to TECHRITE CORP., Box 12 T South Pasadena, Calif

SPATZ PISTOL INVENTION!

\$2.98 full price postpaid
Complete with 50 bullets



Simplified percussion action

Permits low cost shooting. Not an air or CO₂ gun. Light 16 mg powder charge shoots .12 caliber lead bullets. Has only 4 moving parts. 5 inch barrel. Free pamphlet on expert target shooting, indoor-outdoor target ranges. Ammunition at stores. Limited quantity Spatz pistols. Sold direct only. Adults only. Send \$2.98 to LUNDE ARMS CORPORATION, BOX F54, ALHAMBRA, CALIFORNIA

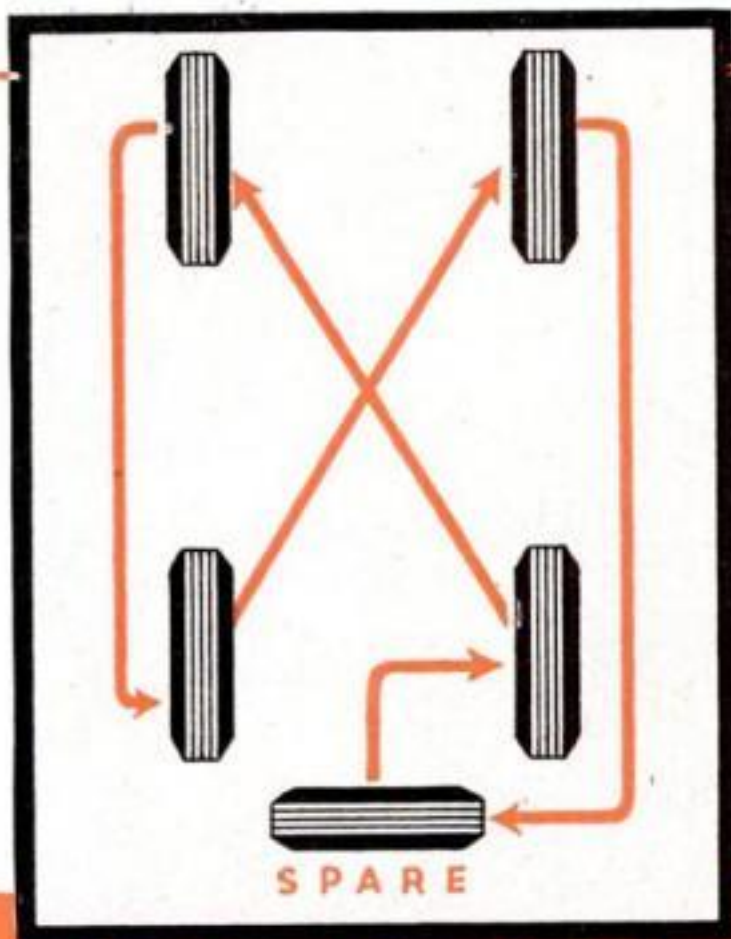


Texaco Tips

on car care

How to get longer tire life

When your tires wear unevenly, they don't give you full service. To get maximum mileage from your tires, they should be inspected often and rotated. See your Texaco Dealer for a thorough tire check. He will inspect the treads for irregular wear. He will check for trouble-making cuts and breaks . . . and fill your tires to the proper pressure. He will rotate them for a nominal fee. This helps you enjoy more miles of carefree motoring.



How to get that "cushiony" ride

Blast Marfak with a stream of water — and it stays put, won't wash away or drip off. That's why Marfak protects your car's chassis better — longer. It's scientifically made to resist the wash-away action of wet roads. And Marfak clings far longer to points of wear . . . fights squeeze-out and jar-out. This means you get a cushiony ride that lasts for 1,000 miles or more. Get longer lasting Marfak lubrication today. See your Texaco Dealer, the best friend your car ever had.



THAT "CUSHIONY" FEELING LASTS LONGER WITH

THE TEXAS COMPANY
TEXACO DEALERS IN ALL 48 STATES

Texaco Products are also distributed in Canada and in Latin America

TUNE IN: Tuesday nights on television, the TEXACO STAR THEATER starring MILTON BERLE . . . METROPOLITAN OPERA radio broadcasts on Saturday afternoons. See newspaper for time and station.



**Miles ahead
in POWER**



**Get the Best
BUY AMERICAN**

HARLEY-DAVIDSON

HYDRA-GLIDE®

HEMISPHERICAL combustion chambers . . . hydraulic valve lifters . . . rotating valves . . . it's got everything! Flashing power . . . for thrilling adventure on America's highways and byways. Smooth riding comfort . . . for miles and miles of tireless travel. Eye-catching beauty . . . real class . . . the handsomest two-

wheeler on the road. And an improved 55 HP, 74 OHV motor. Bring along a buddy and ride the Hydra-Glide today. Or send for free illustrated literature. Enclose 25 cents for your copy of the action-packed, picture-filled **ENTHUSIAST** Magazine. Harley-Davidson Motor Company, Dept. PS, Milwaukee 1, Wisconsin.

the best motor means the most fun!



*the right motor
for every boat*

LIGHTWIN 3 H.P.*

Finest of light motors—smooth, quiet, powerful—only 32 lbs.! Famed Fisherman Drive. **\$145**

Super FASTWIN . . . 15 H.P.*

Brand new this year! New Auto-Lift Hood. Gearshift, Roto-Matic Control and Cruis-a-Day Tank. Engineered for new Evinrude Simplex Remote Controls. **\$325**

FLEETWIN 7.5 H.P.*

Popular 47-lb. "all-rounder" for family and fishing boats. Duo-Clutch, Safti-Grip Drive. **\$210**

BIG TWIN 25 H.P.*

America's top outboard motor. Most power per pound and per dollar. Gearshift, Roto-Matic Control, Cruis-a-Day Tank. Engineered for remote controls. **\$390**

Give yourself *all* the fun there is in fishing! There's a bass hole that's always been too many miles away?

You can be there in *minutes* with an Evinrude!

Like trolling? Horsepower for horsepower there isn't another motor made with the slow, steady trolling

performance that's engineered into *every* Evinrude. At your

Evinrude dealer's, you can see—and *try*—America's finest line of

fishing motors. The smoothest. The starting-est. The most complete.

With *practical* features, like Gearshift, Duo-Clutch, Roto-Matic Control,

Cruis-a-Day Tank, Fisherman Drive, Auto-Lift Hood and the

new Simplex Remote Controls that clip on, or off, in

30 seconds . . . important engineering developments that

make your Evinrude a joy to handle and pack

solid satisfaction into every fishing hour. Look for your

dealer's name under "Outboard Motors" in the

yellow pages of your phone book. *Catalog FREE!*

Write today for full-color catalog of the complete

Evinrude line for '53. **EVINRUDE MOTORS,**

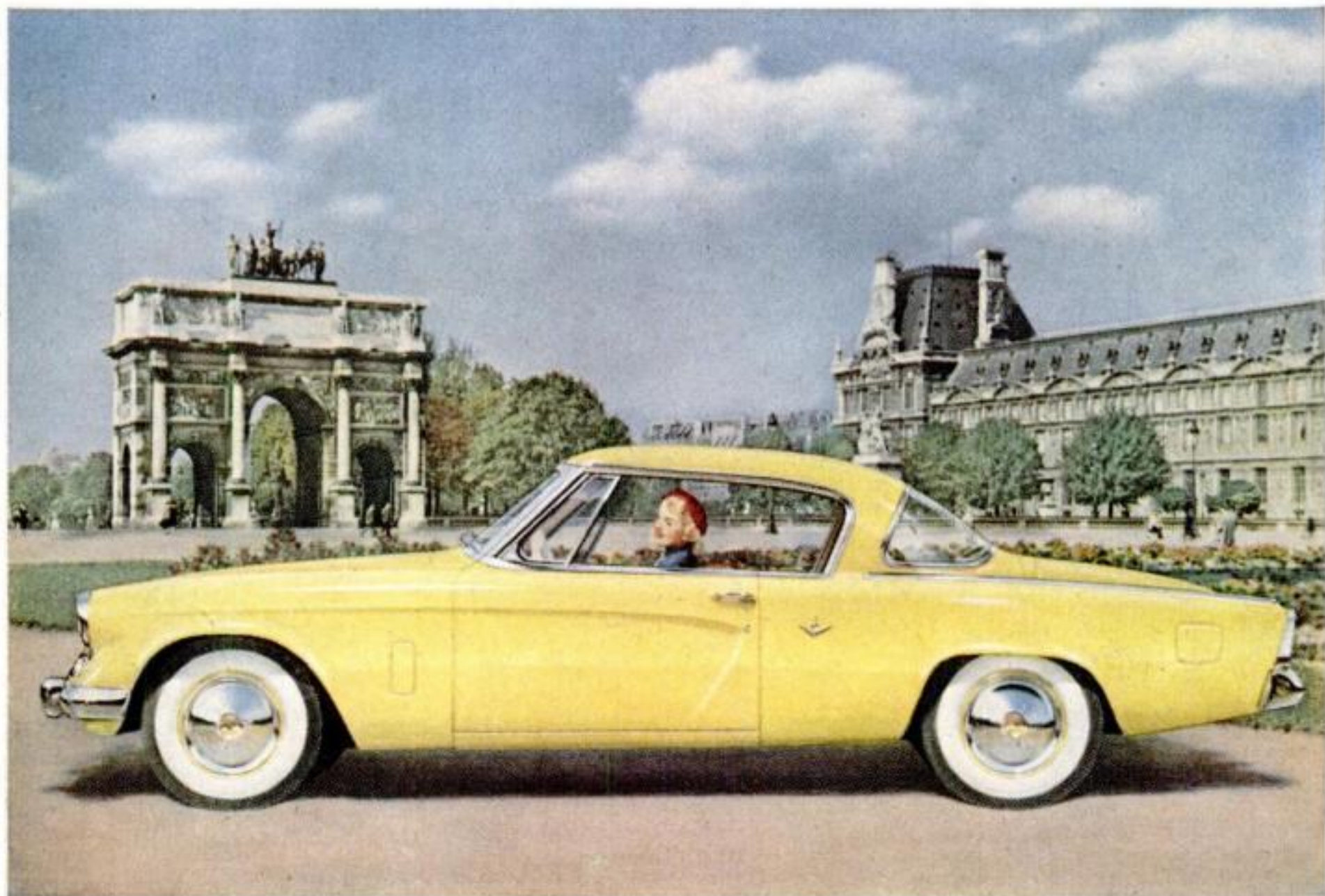
4915 North 27th St., Milwaukee 16, Wis.

In Canada: Mfd. by Evinrude Motors, Peterborough, Ont.

EVINRUDE

First in Outboards...43rd year

*O.B.C. certified brake H.P. at 4,000 R.P.M. Prices F.O.B. Factory, subject to change.



1953 Studebaker Starliner coupe for five—white sidewall tires and chrome wheel discs optional at extra cost

Actual color photograph

Announcing
the New 1953 Studebaker
The new American car with the European look

CHAMPION ★ COMMANDER V-8



The Starliner coupe—less than five feet high!
 A far-advanced new flight into the future!

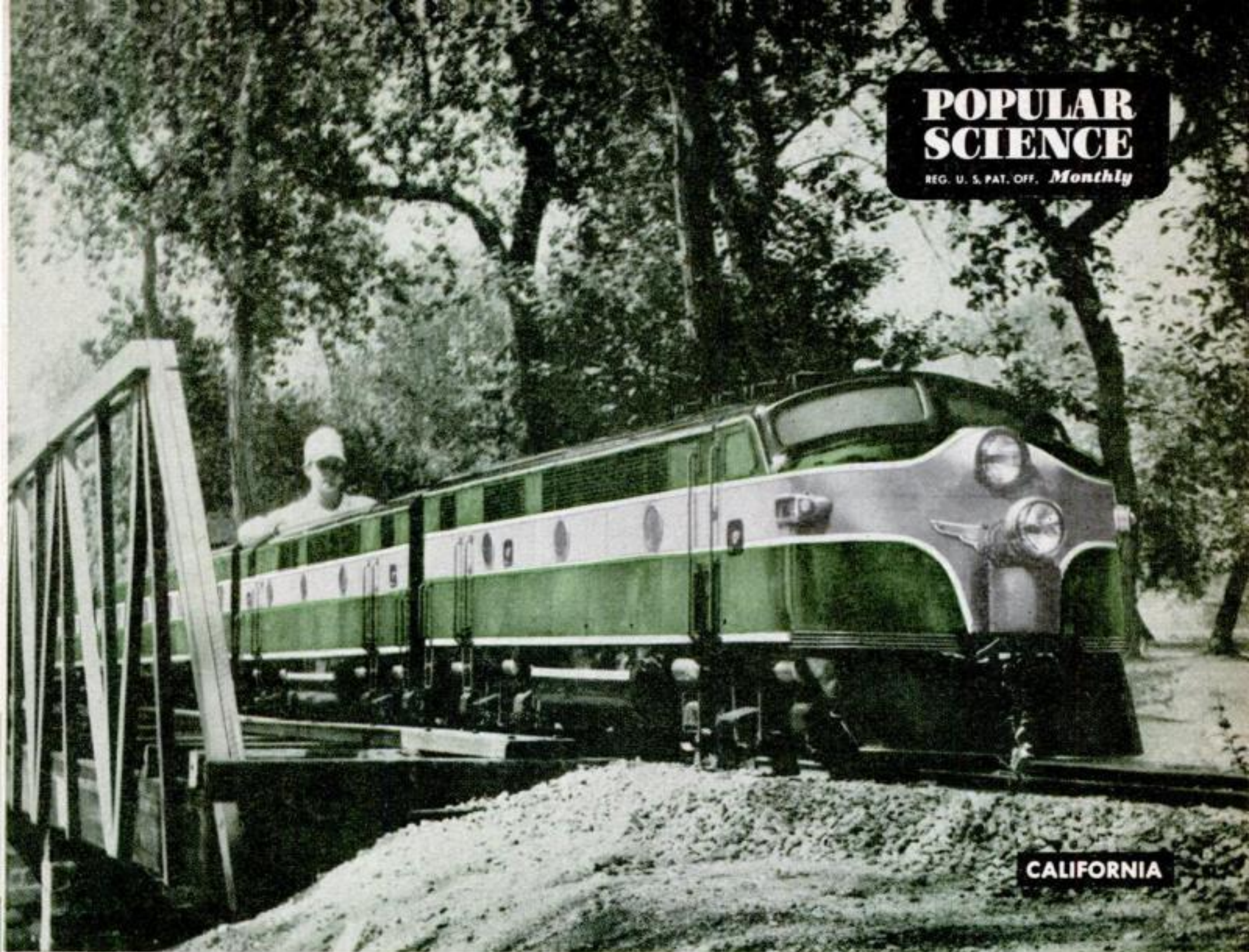
HERE is the most daring step forward of our times in automobile designing—a car sparkling with breathtaking originality . . . the new 1953 Studebaker.

This is the first American car with a real foreign-car flair—an impressively long and racy Studebaker that's so very low most people can see right over it.

Stop in at a nearby Studebaker showroom and try out this exciting new car. A truly marvelous power steering is available in the Commander V-8 at moderate extra cost.



Over 100 Years of Studebaker Progress
 on the Roadways of the World



Model railroading's huskiest "Diesel," this Griffith Park, Los Angeles, midget develops 44 hp.

5,000 Railroads Run for Fun

Back-yard Casey Joneses are making the lilac bushes resound to the whistles of live steamers and gasoline-powered "Diesels."

By Henry B. Comstock

MODEL railroading is moving outdoors. You can blame it on atticless and cellarless houses, high fire-insurance rates, or the yen of the average rail fan to chuff around behind his own locomotive. Whatever the cause, there are more than 5,000 sky-topped model railways in the United States today. They

range from little half-inch-scale pikes that wind through Alpine gardens on a ballasting of bird gravel, to a jumbo system whose coal-fired locomotive towers eight feet to the rim of the stack.

Between the two are more gauges than the 30 which once plagued the world's big-time railroads. That is because your back-yard Casey Jones is a rugged individualist. He builds most of his equip-

SOUTH CAROLINA



Golden Spike ceremony on Elliott Springs' Lancaster & Chester. The engine at left ran at



TWO AIR-COOLED, V-4 MOTORS highball the Griffith Park streamliner around 3,000 feet of track at 30 miles an hour. Each powers four axles through a fluid drive.

ment from scratch to his own specifications.

If he is an old-timer, he may have latched onto a discarded amusement-park engine. Most of these sturdy live steamers, built by Cagney or the New York Locomotive Works, went at bargain prices 20 years ago, when their commercial owners switched to gasoline-engine-driven jobs. Today they are collectors' items.

One of them, well known to thousands of motorists passing through Stony Point, N. Y., is believed to be the only miniature engine ever involved in a train robbery.

Live steamer below cost \$15,000, attracts guests to the dairy of Henry Becker & Son.

NEW JERSEY





the Charleston Exposition in 1902.

Stopped at gun-point at the St. Louis World's Exposition in 1904, she blew her pops in indignation while three carloads of passengers were relieved of their valuables.

A modern live steamer is no trinket for Junior's Christmas stocking. Several manufacturers offer 1½- to three-inch-scale custom-built models for \$10,000 to \$20,000. Pound for pound, the models cost six times as much as the last batch of full-scale steam giants built by the American Locomotive Co.

As the father-son team of Elmer and Norman Sandley, manufacturers of ev-



Grandpa Rode Behind It

Amusement-park engines put model railroading in the passenger-hauling business. Under-scale wheels and broad driving tires gave them more power than good looks, and it took an asbestos skull cap to ward off sparks and cinders. Today, park railroads use gasoline engines and little kettles like the "999" are collectors' items.

everything for the 15-inch-gauge garden railway, put it: "There just aren't enough Harrimans and Vanderbilts in the hobby to get us started on the quantity production methods that would lower costs."

The Sandleys are also full-time locomotive engineers on the Chicago & North Western Railway. They believe that their pint-size products could be put to real use in rural areas, trundling crops to big roads like the C&NW.

In Roseland, N. J., the 900-acre dairy farm of Henry Becker & Son uses what is probably the country's largest privately owned outdoor model railway as a novel

More than 1,750 rivets went into this streamliner built by a Minneapolis machinist.





PENNSYLVANIA

SMALL JOB for a "Big Hook." Robert Miller's Bath, Pa., model pike makes extensive use of marine plywood for car bodies and engine cabs. Running parts are castings.

promotion gimmick. Started as a hobby in 1938, the 1.6-mile-long "Centerville & Southwestern" now offers free rides to nearly 3,000 passengers a year.

Two of the flossiest two-inch scale locomotives ever built provide iron-pony power for the 17 coaches on the dairy farm. Tops in its class is road engine 1501, a 19-foot reproduction of the big Pocono-type locomotives which once handled the heaviest "name" trains of the Delaware, Lackawanna & Western.

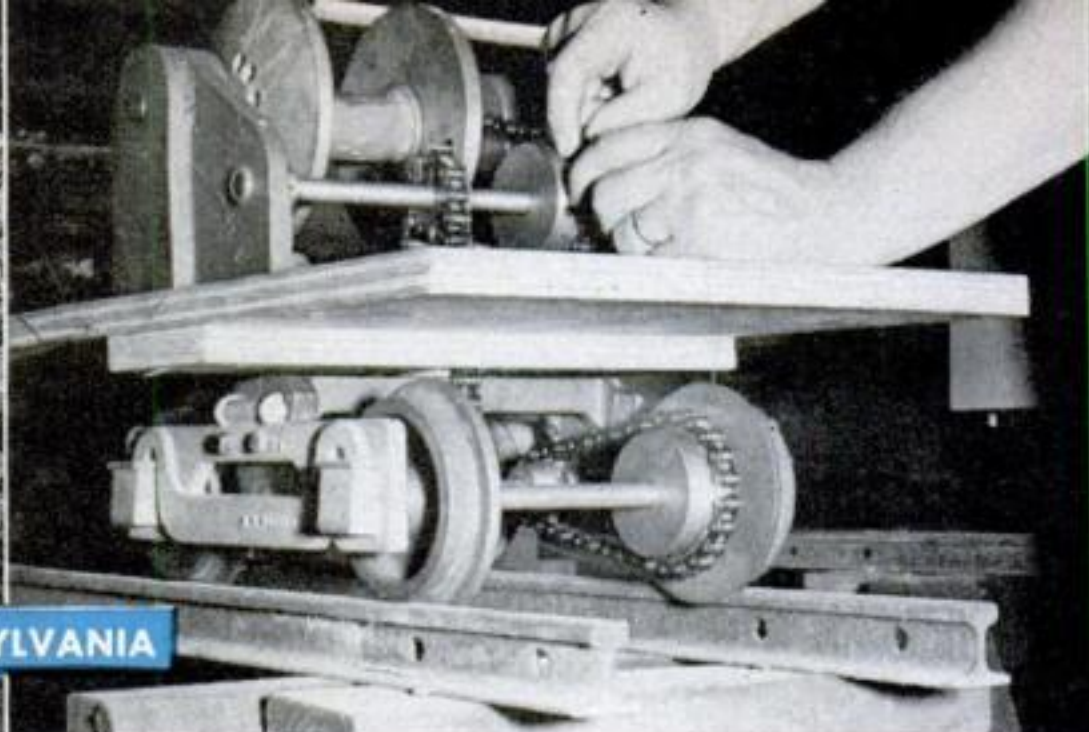
The Beckers' other road engine is a "Diesel." Actually, a four-cylinder gasoline engine housed in the cab of this free-lance model does the driving.

To an enterprising plumber in Creston, Iowa, go first honors for the biggest one-man model railroad ever built. Byron

POWERFUL PYGMY. Former Canadian Pacific switchman C. G. Montgomery built this 3/4-inch-scale live steamer, has run it more than 2,000 miles. It pulls eight passengers.



CANADA



FRICTION DRUM, with a chain-drive connection to both axles, provides smooth starts for Miller's locomotives. Power comes from a one-horsepower gasoline engine.

Hiatt was once a Chicago, Burlington & Quincy steam fitter. One boiler pipe dream led to another, and out of them came a 24-inch-gauge system laid out on a strip of farmland which Hiatt bought for only one purpose—to let him widen the throttles on the two live steamers which he has assembled from scratch.

Each of these engines is nearly half the size of its Burlington prototype. That means that Hiatt can ride inside the cab, instead of perching on the tender. A completely enclosed coach and baggage car make up the road's rolling stock, but more equipment is on the way.

Engine Hauls 10 Tons

Less impressive in size, but showing the same fine craftsmanship, are more than a thousand full-working steam models built to 1/2-inch, 3/4-inch, 1-inch and 1 1/2-inch scales by hobbyists who have more time than money to give such projects.

A few of the veteran hobbyists are now turning out blueprints, patterns and castings as a part- or full-time business. "Little Engines," founded by Martin and E. I. Lewis, is the largest outfit in the field. Biggest in their line is an \$811 set of castings for a Union Pacific 4-8-4 that measures 14 feet between couplers and will haul 10 tons with ease.

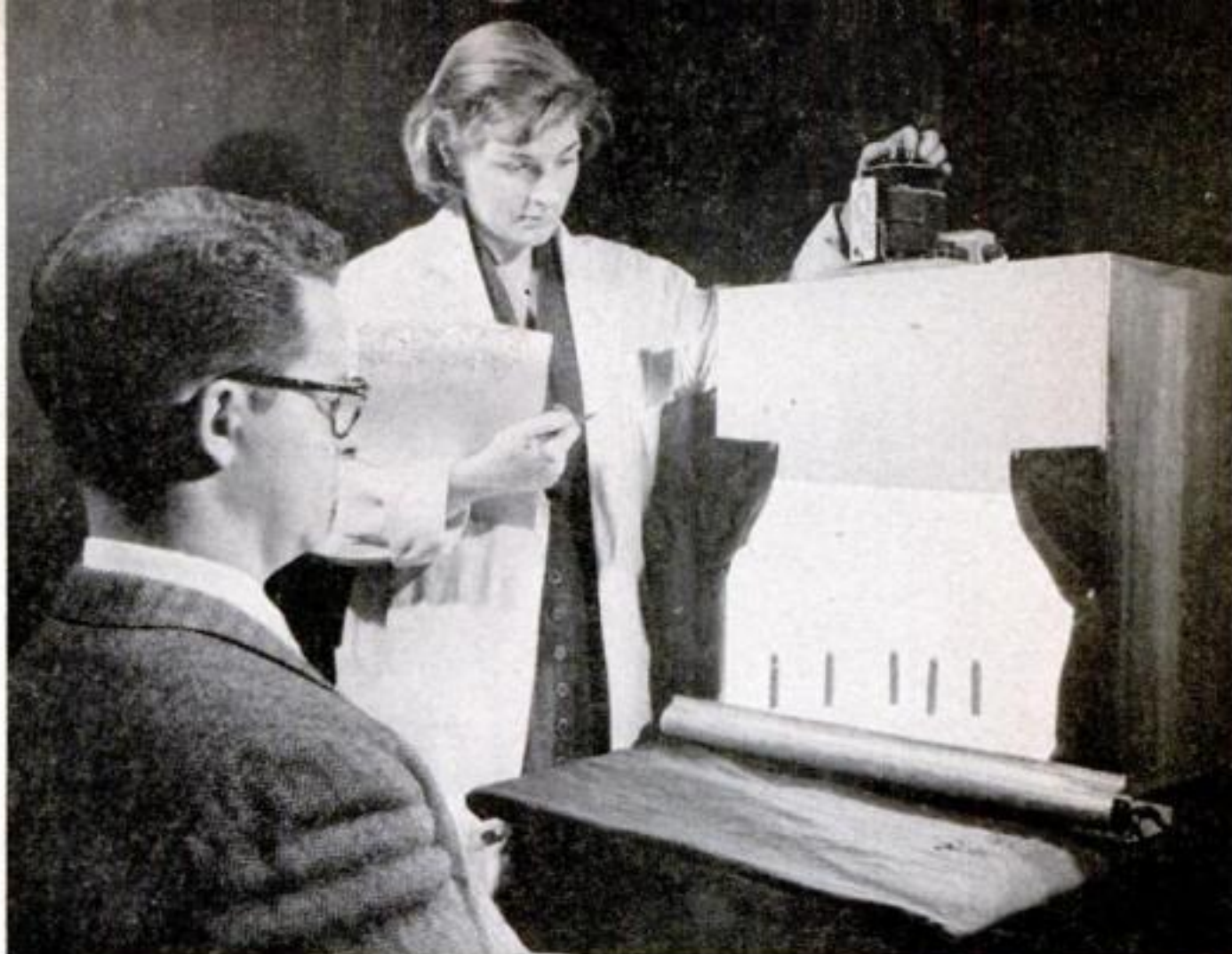
Back-yard railroading would still be a luxury if General Motors and Briggs & Stratton hadn't unconsciously given the boys a financial assist. GM started the

[Continued on page 270]

She's Learning Stage Tricks

WHERE should an actor stand on stage to get most attention?

Psychologists at Cornell, using a tiny stage with footlights, overhead lighting and dark mannikins (right) have bolstered the old tradition that center stage is THE spot. But study proved in general that a star's isolation from competition and from walls and corners is more important than position on stage.



She's Running a Railroad

MARGUERITE COOK kept right on working this traffic control board while it was moved—without being disconnected—out of an old building, across three tracks and into a new building. During the 1½-hour moving job, Miss Cook handled switches and signals to pass four Pennsy trains through the Terre Haute territory.



He's Talking to a Signboard

SOME day you, too, may talk to "Audrey"—the automatic digit recognizer—to get a phone number. It sorts out spoken numbers from zero to nine, responds by flashing an appropriate light. Not yet in a state to tolerate voice variations or careless enunciations and accents, it may eventually control dialing mechanisms, Bell Labs hopes.



**WILBUR SHAW REPORTS
FROM THE DRIVER'S SEAT OF**

America's Most Powerful Car

KICKING up its heels in celebration of its 51st birthday, Cadillac has nosed out its closest rival in the horsepower race among big mass-production automobiles.

Cadillac started the race, was left behind for a while and now once more is out in front. The 1953 Cadillac has a 210-horsepower engine. That's five horsepower more than the new Lincoln has (PSM, Jan. '53, p. 110), 30 more than the 1953 Chrysler produces.

Smart Engineering Pays a 20-Hp. Bonus

But, strange as it may seem to you, Cadillac isn't doing much boasting about that power. What its engineers really are proud of is that they have coaxed more fuel economy, efficiency and smoothness out of their spirited high-compression engine. The added zing—

TWELVE SECONDS after taking off abreast of the 1952 Cadillac the photographer was riding in, the 1953 Cadillac I was driving (arrow) was hitting 60 and leaving the other car well behind.



20 horsepower more than the 1952 Cadillac had—nice as it is to have available, is really a by-product, they say.

Still, if you want a race-horse start and acceleration like a plane's take-off, the '53 Cadillac has them. With a four-passenger load, it will spurt from a standing start to 60 miles an hour in 12.2 seconds and will hit 80 in 20.8 seconds. The 1952 car took 13.1 seconds to reach 60 from a standstill, 24.2 seconds to get up to the 80-mile-an-hour point.

They've Done Quite a Bit to This Car



The car that Cadillac put out in 1903 is a model-makers' favorite, sold in kit form



now. Will 1953's most powerful car seem equally charming on a mantle in 2003?

Pepped up by a 210-horsepower engine — that still runs soft and saves gas — the new Cadillac spurts ahead of its rivals.



The engineers preferred to talk to me about gas mileage, however—16.2 miles to the gallon in average city driving, 18.2 on the open road. That is $1\frac{1}{2}$ to $2\frac{1}{2}$ miles per gallon better than the 1952 Cadillac could do.

For an engine as powerful as this one and a car as big and heavy, those are impressive figures.

I must say, though, that I've often wondered why there's so much fuss about fuel economy in passenger cars. The difference between getting 15 miles to the gallon and 25 would cost the average driver less than \$50 a year. You'd think the added comfort and pleasure of a bigger, more powerful car would more than offset its tendency to drink up more gasoline.

'53 Engine Takes Life Easier

To gain economy, Cadillac engine experts first lowered the rear-axle ratio from 3.36 to 3.07 to 1. This means that the engine doesn't have to do as much work per mile. The fewer r.p.m. required, the slower the pistons, valves and all moving parts need travel. In other words, less engine friction is created. And the

less friction there is, the less horsepower is lost by that route. There's where your economy comes in.

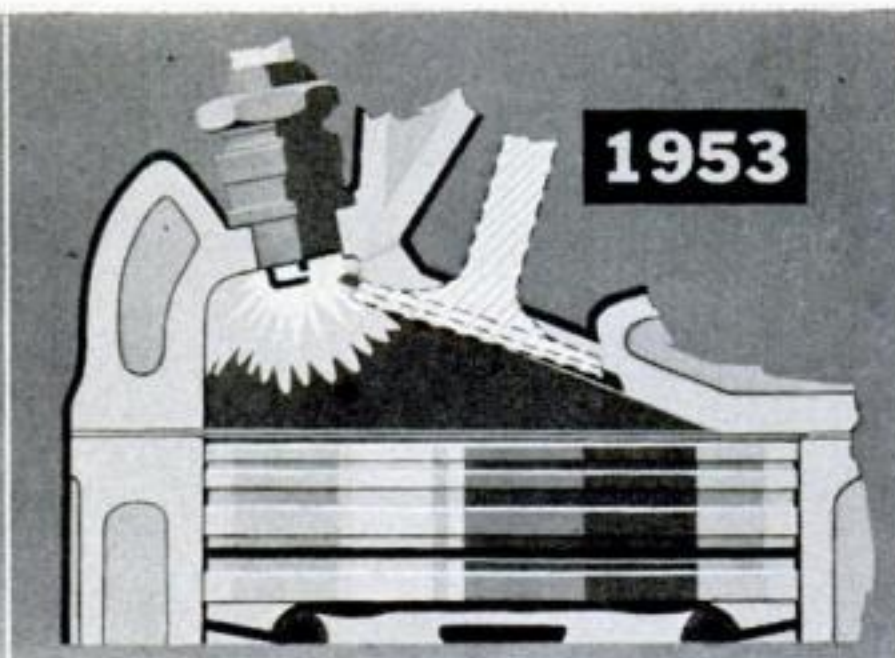
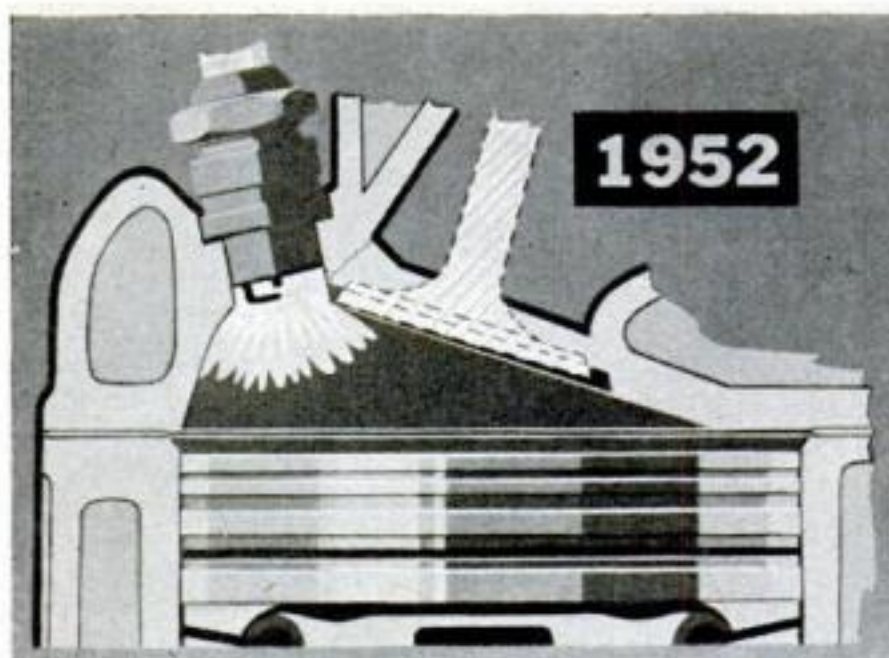
A drop in r.p.m. naturally also brings a drop in engine noise and vibration.

But economy and quiet are all you would gain from the lowering of the rear-axle ratio if you didn't have some compensating gain in propelling force, or torque. You'd immediately notice that the car had become sluggish.

The easiest way to restore drive to the engine would have been to increase the piston displacement, but that's the most expensive way to do it in terms of fuel cost.

Cadillac engineers retained the economy they had gained by lowering the rear-axle ratio and at the same time increased the torque produced by their engine, in these ways:

- Changing the shape of the combustion chamber to promote more even burning of the mixture of gasoline and air.
- Lowering the spark plugs, for better flame propagation.
- Reducing the quench, or "squish," area in the cylinder.
- Changing the valve timing and in-



SEAT OF POWER is the engine combustion chamber. These comparative drawings of the 1952 and 1953 Cadillac combustion cham-

bers show how the contours have been altered and the spark plugs lowered to speed up progressive burning of the fuel-air mixture.

creasing the lift of the valves to enable the engine to breathe deeper.

- Improving the distributor to give a faster response to changes in engine speed.
- Altering the carburetion to provide generally leaner mixtures, though rich enough to avoid ping.

Luxury Is the Keynote

You expect quality features in a Cadillac, and in the 1953 lines they are evident everywhere, from the firm, heavy click of the doors to the push-button radio aerial and window lifts.

Air conditioning, capable of lowering interior temperatures from above 100° to 75° in a few minutes, is available at extra cost. For winter driving there are

heaters for the passengers in back as well as those in front.

Power steering is obtainable, too, of course, and it has been improved in the 1953 cars. Cadillac still hangs back from full power steering, however, with the excuse that it is unsafe. I don't agree with that attitude, and I am sure that Cadillac, perhaps under pressure from its buyers, will eventually come around to my point of view.

The company offers the biggest tires available for passenger cars—8.20 by 15 super balloons—to all clients who choose the whitewall variety. This gives the cars bigger footprints to go with 12-inch brakes all around. The tires are mounted on any of five kinds of wheel, ranging from the standard ones, which

FACTS ON '53 CADILLAC

Model: Series 62 4-door sedan.

Engine: V-8 overhead valve; 210 hp. at 4,150 r.p.m.; compression ratio, 8.25:1; piston displacement, 331 cu. in.; piston travel (in feet per car mile at 20 m.p.h.), 1,328; bore and stroke, 3.81" by 3.63"; torque, 330 lb.-ft. at 2,700 r.p.m.

Weight: 4,372 lb.; per hp., 20.82 lb.

Transmission: Hydra-Matic; rear-axle ratio, 3.07:1.

Steering ratio: 25.47:1; radius of turning circle, 21.6'.

Effective brake-lining area: 258.5 sq. in.

Springs: front, coil; rear, semi-elliptic.

Outside dimensions: height, 62.7"; overall length with bumpers and guards, 215.8"; width, 80.1"; wheelbase, 126"; overhang, front 34.9", rear 54.9"; tread, front 59.12", rear 63.10".

Inside dimensions: seat-cushion width, front 63.7", rear 64.3"; leg room, front 43.9", rear 43.6"; headroom, front 35.8", rear 35.6"; seat height, front 14.6", rear 12.5"; vertical distance, steering wheel to seat cushion, with seat in rear position, 5.1"; front-seat adjustment, horizontal 4", vertical, .6".

Tire size: 8.00 by 15 super balloon (black sidewall), 8.20 by 15 super balloon optional (white sidewall).

don't cost the buyer anything extra, to chrome wire wheels, which do.

The sound level of the new Cadillac is, I'm sure, lower than that of any other car in America. It is now at a new low, partly because the engine is quieter and because there are resonators and mufflers on the twin exhausts, but largely because of added insulation.

Insulation Added

There's a glass-fiber blanket under the hood, for instance, enclosed in a sheath of black plastic so that it is hard to distinguish from the metal. There is insulation between the ceiling fabric and the roof, too, for half the distance to the rear window. They tried insulating the entire ceiling but an unnerving boom resulted. Half-insulation turned out to be best.

A safety feature worth mentioning is the new locking arrangement on the doors. With small children in mind, Cadillac body designers fixed it so that once the door is locked, you can't open it from inside by turning the handle. You have to pull up the locking plunger first.

Shifting Is Smooth as Silk

Automatic transmission and a 12-volt electrical system are now standard equipment on practically all Cadillacs. In keeping with a smoother engine, the Hydra-Matic transmission has been further refined. The shift points have been modified to conform better to throttle openings. As a result, gears shift so easily that there's no engine fuss and barely noticeable difference in "feel."

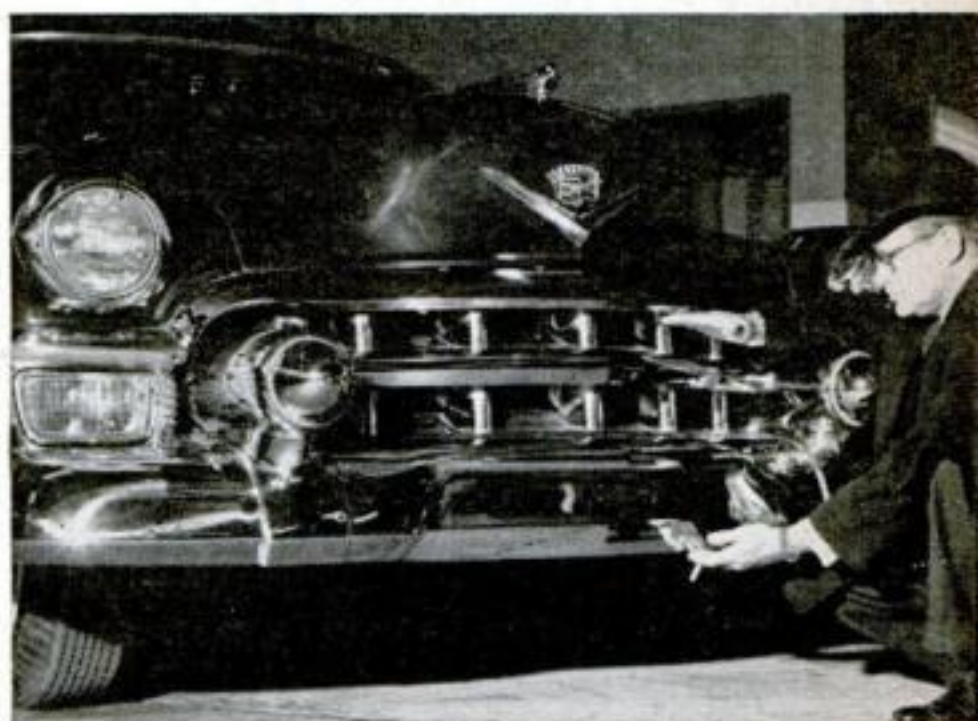
A rear-shelf speaker for the radio, located under the package shelf, is optional for all Cadillacs.

And in the eight-passenger limousine there is a duplicate set of radio controls in the rear seat that override those in front. If the chauffeur has tuned in be-bop and the boss doesn't like it, a flick of the rear dial can force the poor guy at the wheel to listen to Beethoven. END

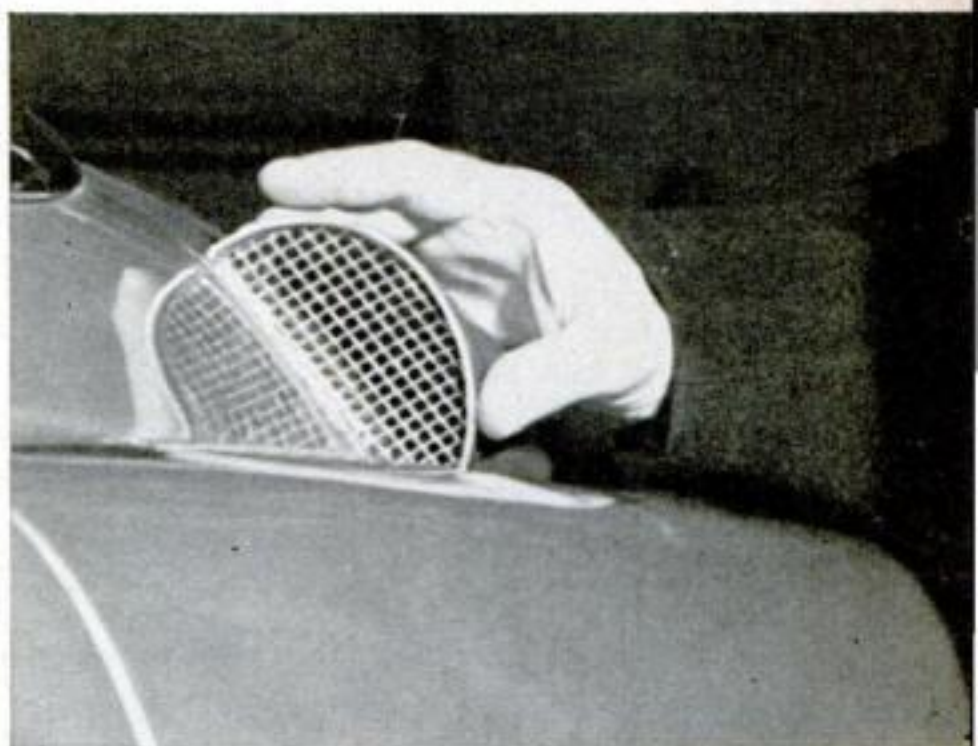
Next Month: Wilbur Shaw will Report from the Driver's Seat of the spruced-up 1953 Nash Rambler.



I LIKE THESE HAND GRIPS on the '53 Cadillac's steering wheel. They are of greenish roughened plastic. The grips on the El Dorado de luxe convertible are of leather.



THE MASSIVE BUMPER-GRILLE is attached in one piece on the assembly line. It is entirely separate from the front of the hood, to avoid crumpling sheet metal in slight collisions.



THIS AIR SCOOP on the rear fender has a twin on the other side of the car. They are the only outward signs that the 1953 Cadillac to which they are attached is air-conditioned.



BING CROSBY holds piece of VTR tape on which 4,000,000 impulses are recorded.

Tape Carries Both TV Pix and Sound

ADREAM of the television industry is closer to realization with the announcement of a system that records live shows, both pictures and sound, on tape. It is VTR—Video Tape Recording—a development of the Bing Crosby Enterprises.

Since VTR is all electronic and magnetic recording, the costly and time-consuming processing of film is eliminated. For you, that probably means bigger and better “canned” television shows.

The main problem has been licked—that of increasing by more than 200 times the amount of information tape can record. “We’ve got a good image plus a few bugs,” says John T. Mullins, who conceived the system. He doesn’t consider removing the bugs difficult.

TEST VTR SETUP puts programs on tape, plays them back to screen and speaker.



The Fish

Century's most important catch is a “missing link” bridging 300,000,000 years of life.

WHEN a native African fisherman hauled out of the Indian Ocean recently a strange five-foot fish, the news flew 'round the world.

As he was about to sell his catch, a friend recognized it as a fish for which Prof. J. L. B. Smith of Rhodes University, Grahamstown, was offering a reward. The professor was notified, flew up from South Africa, looked at the fish, identified it as a *coelacanth*, and wept with joy.

When Dr. Bobb Schaeffer, associate curator of fossil fishes at New York's American Museum of Natural History, heard the news he hailed the find as the most important event in the study of natural history in this century.

Why the ugly *coelacanth* (pronounced SEE-la-kanth) is so important is shown in the picture chart at the right.

The story goes back to a group of fish known as *crossopterygians* that lived some 300,000,000 years ago. There is evidence that descendants of this fish developed limblike fins which enabled them to crawl out of water. Thus, they were able to climb the ladder of evolution from reptiles to primitive mammals to primates.

Another branch of the same family, the *coelacanth*s, had six stubby fins, two double sets that showed promise of becoming front and hind legs. But they didn't, and until recently the only evidence that these fish ever existed was from fossils—remains preserved in stone. They were supposed to have disappeared, like dinosaurs, 75,000,000 years ago.

Now a fisherman's luck has turned up a “prehistoric” fish that scientists can dissect for study of the internal organs, which are missing from fossils.

That Evolution Forgot



Only skin and skeleton remained of coelacanth (above) caught in 1938. New specimen has many internal organs intact.



... became reptiles ...



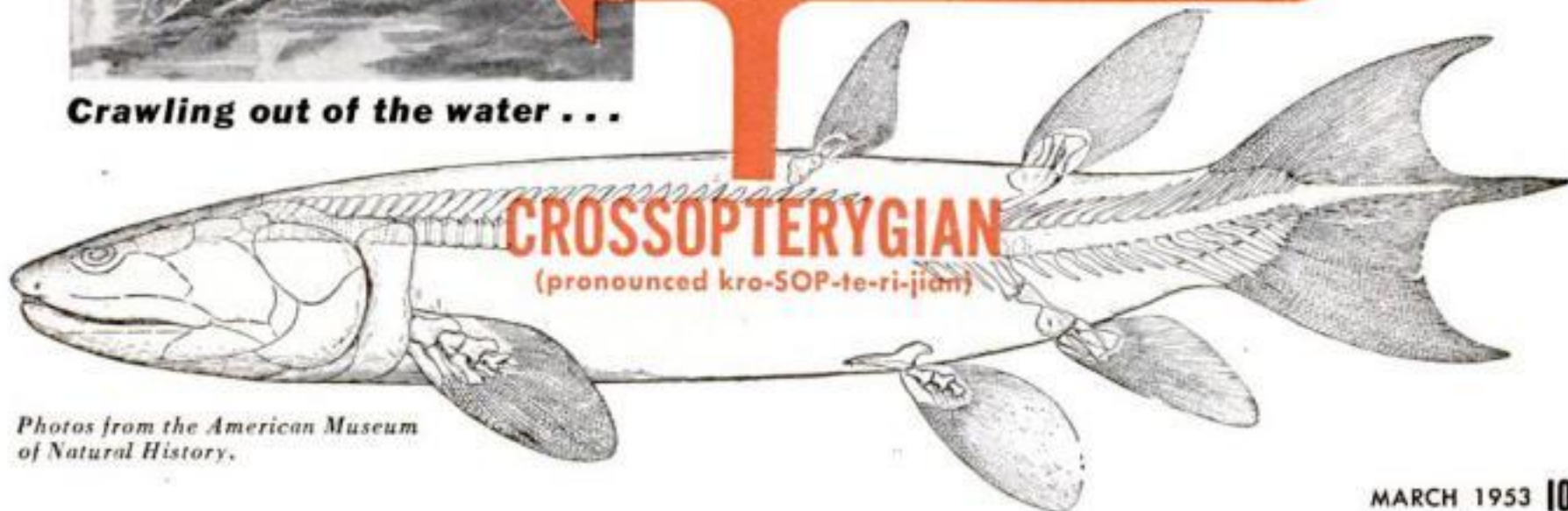
... then primitive mammals ...



... and finally primates.



Crawling out of the water ...



CROSSOPTERYGIAN
(pronounced kro-SOP-te-ri-jian)

Photos from the American Museum of Natural History.

300,000,000 YEARS



Control Tower on Wheels Talks Planes Down to Runway

THEY send the control tower out to meet the planes at Goodfellow Air Force Base, Tex. It's on a truck. The "tower" itself, complete with three radio transmitters and receivers, has retractable wheels so that it

can be rolled off the truck. The unit was designed by Lt. Col. Savell Sharp mainly to land training planes, and is reported to be much easier to maintain than mobile towers mounted in separate trailers.



Plastic Box Shows Your Mail

YOU can not only tell that you have mail, but even who it's from with a new plastic mailbox. The bottom slants to slide letters forward for better visibility. There's a thermometer on the box, too. Campro Sales Co., 1300 14th St. S.W., Canton, Ohio, sells it.



Two-Bowl Pipe—One's a Filter

THERE are two bowls to stoke up on this pipe, but only one burns. Tobacco in the second serves as an easily replaceable filter to cool and dry the smoke. Sepra-Bol is made by International Allied Industries, Box 202, Hialeah, Fla.



THE ENTERPRISE, "a Rolls-Royce on two wheels," has never been opened up. Its owner considers 65 miles an hour fast enough.

His Dream Motorcycle Cost \$5,000

FRONT WHEEL TURNS EASILY within the streamlined panels formed of car-body steel. Louvers admit air to cool the 45-cu.-in. Indian Scout engine. Safety tubing forms a framework to protect the running gear in a crash. Tires are 6.00 by 9.

Streamlined panels of auto-body steel hide the frame and engine while a new principle of springing gives a bump-free ride.

By Andrew R. Boone

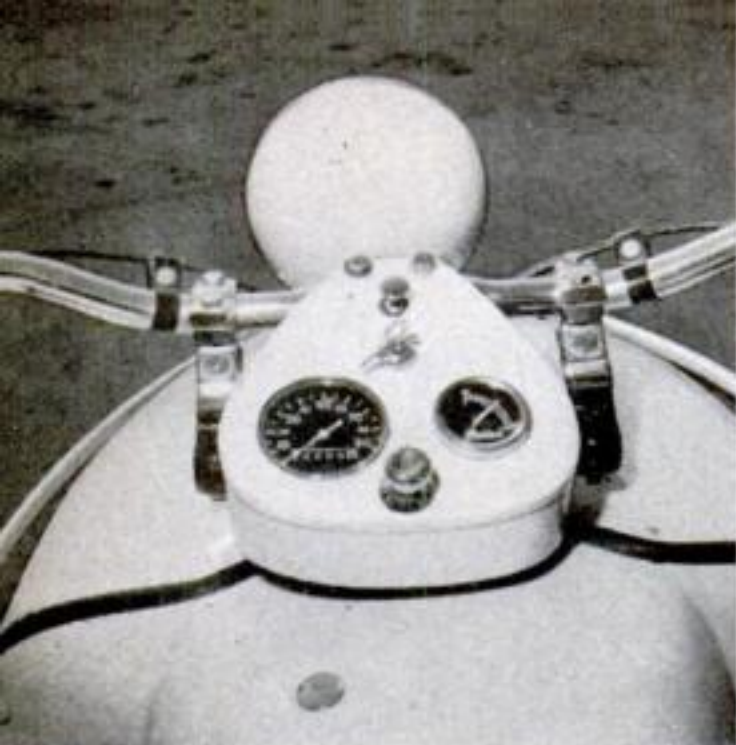
ONE night in March, 1950, O. Ray Courtney worked until two a.m. and drove home discouraged. He was trying to design a better motorcycle. He wanted one with the seat forward, with better cooling, better springing, and a more beautiful body. Discarded sketches littered the floor of his shop.

That night in a dream he saw a streamlined beauty skim across a flowered field. Too excited to report for work the next

day, he hastily put his dream on paper—and he is riding that dream cycle now through the streets of Pontiac, Mich.

Courtney is a 56-year-old metalworker. As a boy in Dunkirk, Ind., he rode a one-cylinder 1911 Indian, moved on to an Excelsior twin, and did a little hill climbing and road racing. "The vibration," he still recalls, "was so tough I often couldn't keep my feet on the controls."

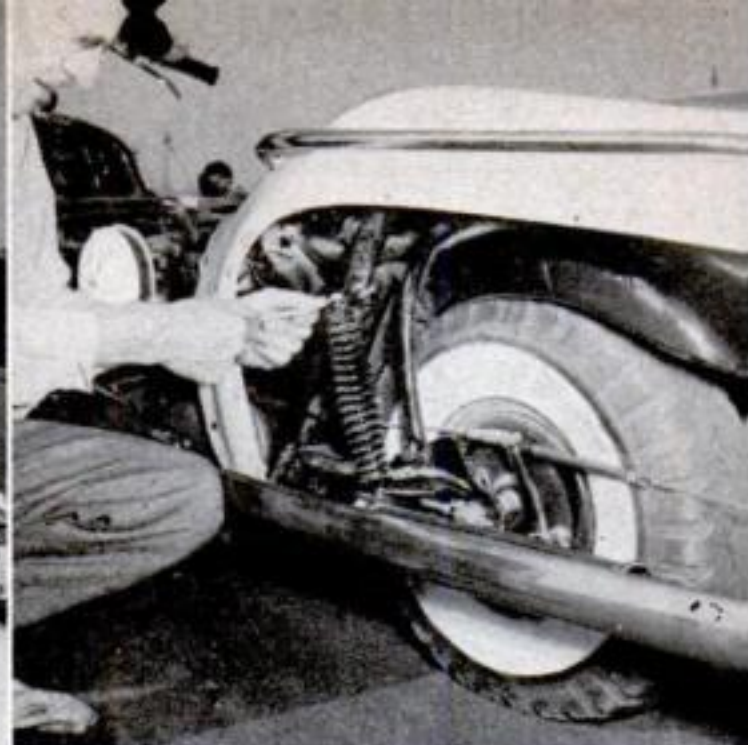
In the Air Corps during World War I, he began to gather ideas for streamlin-



INSTRUMENTS are housed in neat island between handle bars. Mounted on island are speedometer and ammeter with lock positioned near front. Ride-control knob (not shown) is behind island.



SPECIAL GAS TANK, baffled to prevent splash, is located over front wheel. Bolted to top panel, it holds three gallons. A standard, one-gallon Indian oil tank is located at the rear of the engine.



INSIDE FENDERS mounted over wheels help prevent mud from building up on body panels. Steel strips along sides cover twin tailpipes and mufflers. Rear-wheel assembly is shown in the photo above.

ing. Years later he designed a streamlined car that became the '33 Olds.

Nowadays he designs body parts for Kaiser-Frazer. But he and his son Bill have a shop of their own where he works in his spare time. It took him two years of spare time to build the Enterprise.

This plush bike gives you a softer, springier ride than you'll get on any other motorcycle. You sit comfortably ahead of the rear wheel in a seat roomy enough for two, 10 inches farther forward than the saddles on most cycles.

The Enterprise steers like a car. The handle bars have been moved forward; the engine has $7\frac{1}{2}$ inches of ground clearance (more than average), but the seat and body have been lowered, bringing down the center of gravity three inches for good cornering.

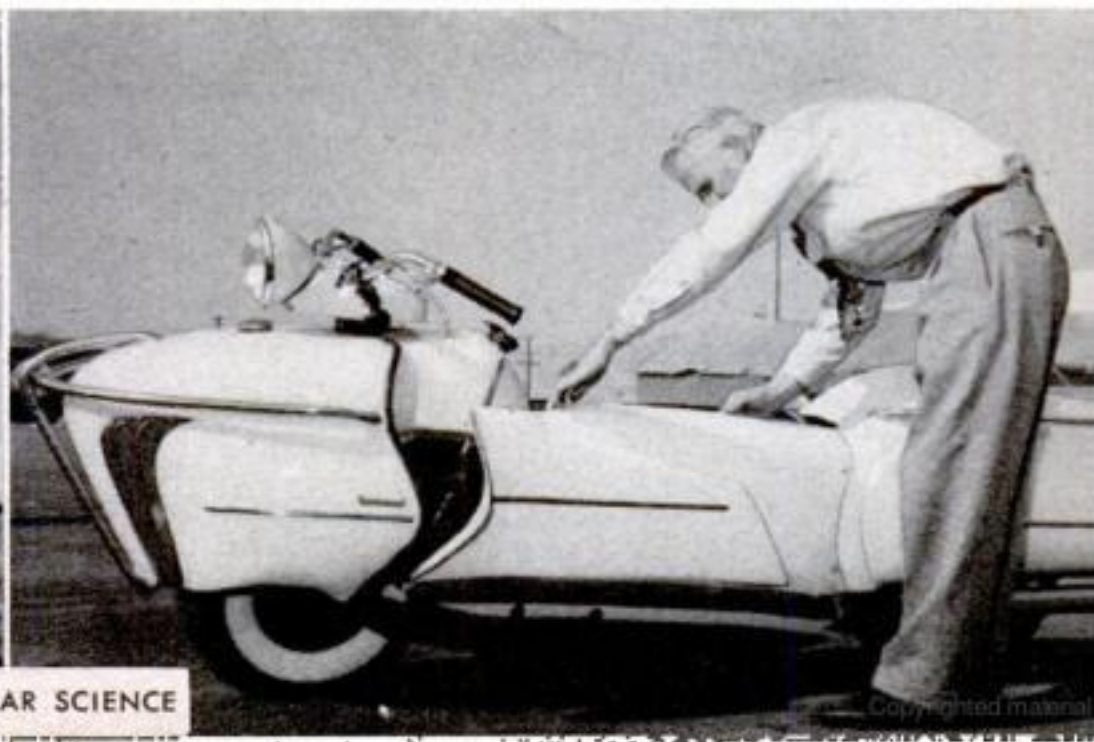
QUICK-RELEASE FASTENERS hold all panels to frame except the two main top ones which are bolted in place. The panels are 19-gauge car-body steel, shaped with a power hammer.

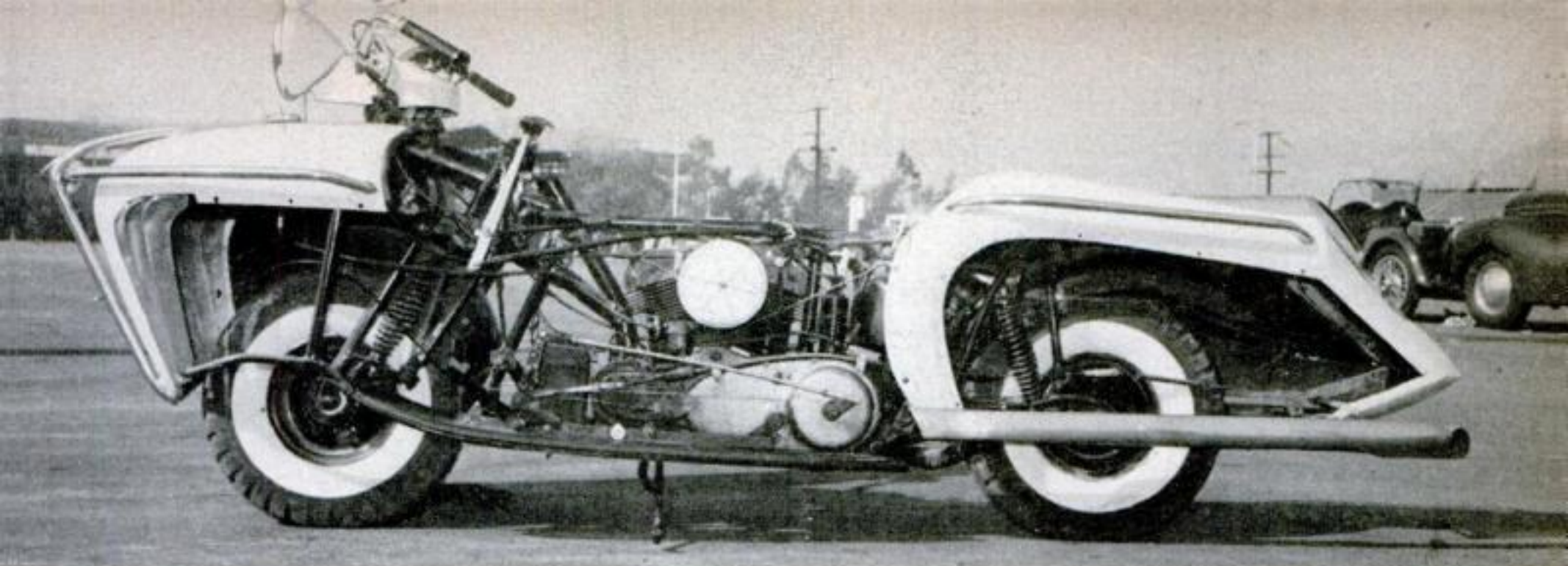
You advance the spark with your left hand, feed gas with your right. (Harley and some British bikes are driven similarly.) And you shift three standard gears. Either the left grip or the left foot operates the clutch. Your right hand powers the front-wheel brake and your right foot the rear brake.

Courtney built his first motorcycle in 1936. The front of this black-and-red job—it is still ready to ride—is strikingly like the first rounded Oldsmobile front fenders.

The white "dream" job that he is riding now cost him \$5,000, but people say when it rolls by, "Hey, that looks like a Rolls-Royce on two wheels." He hopes to build more cycles. And they will sell for much, much less than the original Enterprise cost to make.

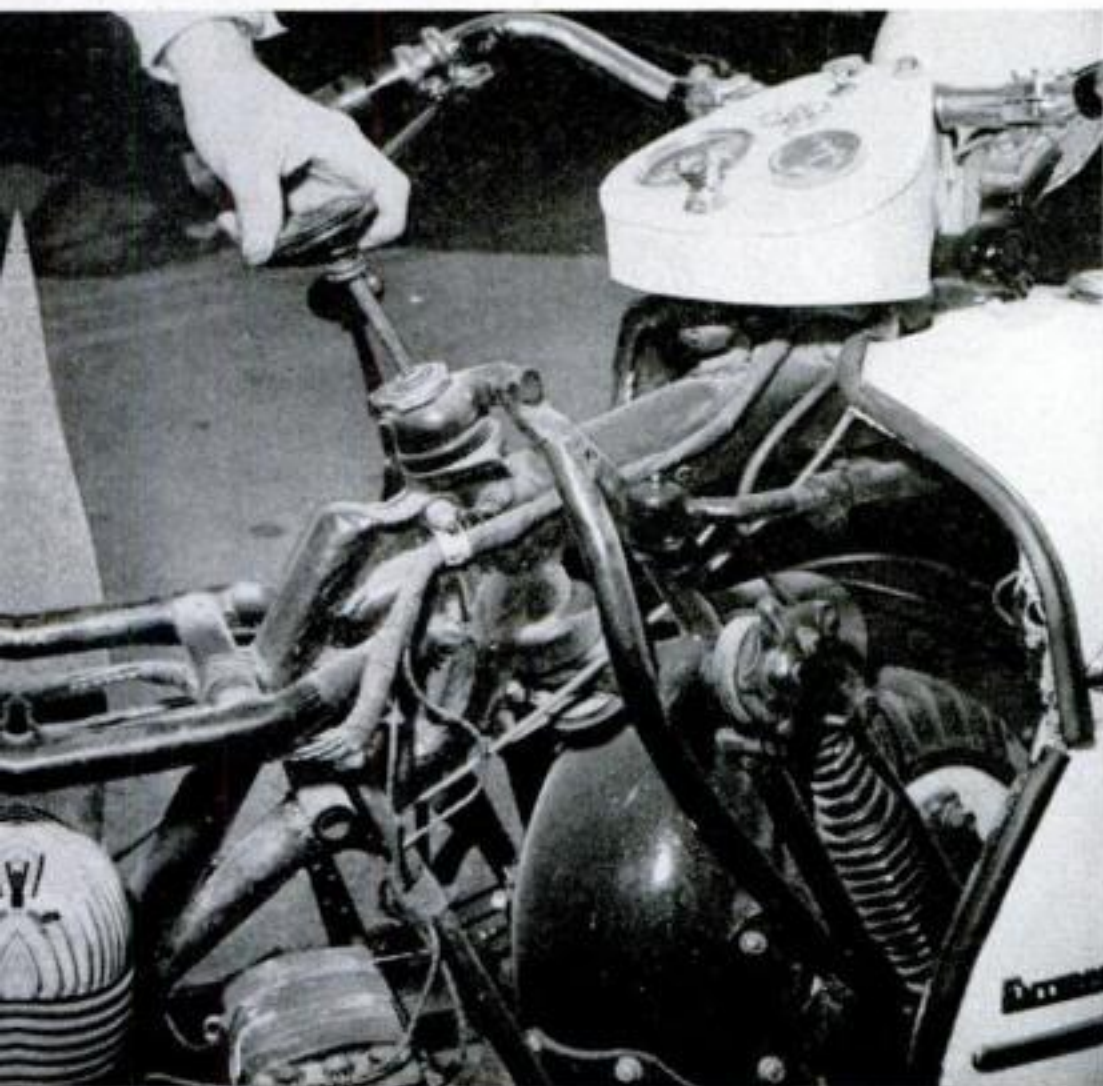
To reach oil tank, seat is snapped out of frame. Ride dampener steadies front wheel at high speeds. The 21-inch wheels, smaller than usual, permit sharp turns.





FRAME is $1\frac{1}{8}$ -inch chrome-steel tubing. Handle bars, $10\frac{1}{2}$ inches forward on an exten-

sion tube, are mounted on a second head. They connect through drag links to fork.



EACH WHEEL is straddled by a U-shaped yoke to which is connected a pair of coil springs. All springs are controlled by Indian-type snubbers. Front wheel is shown here.

ROOMY SEAT snaps into place in the frame. Seat, 30 inches long, is made of foam rubber and mounted on tubing. Leather covering over rubber is an off white color.



STREAMLINING continues to tail. Machine is 26 inches wide. Bulges flanking sides of rear wheel are metal-covered saddlebags. Twin exhausts feed out through twin tailpipes.

TWO CAN RIDE as comfortably as one on the big seat. Long footboards add to comfort and prevent splashing. The Enterprise is 112 inches long, weighs 580 pounds. **END**



How to Gauge 1/100,000 Inch

WITH the weird apparatus towering over Prof. Samuel K. Allison (below) a highly accurate way has been found to measure tiny variations in the thickness of materials.

It's an atom smasher called a Kevatron, used to fire 100,000-volt proton beams at thin silver and aluminum foil. Professor Allison discovered that even when the foil is only 1/100,000 inch thick, it robs the proton beam of roughly half its energy. The exact amount lost varies with minute differences in the foil thickness. The loss in energy is found by measuring the amount of magnetic charge needed to bend the beam after passing through the foil—and this tells how thick it is.

Professor Allison, director of the University of Chicago's Institute of Nuclear Studies, says this method would be practical for industry, using a radioisotope as the source of the proton beam.



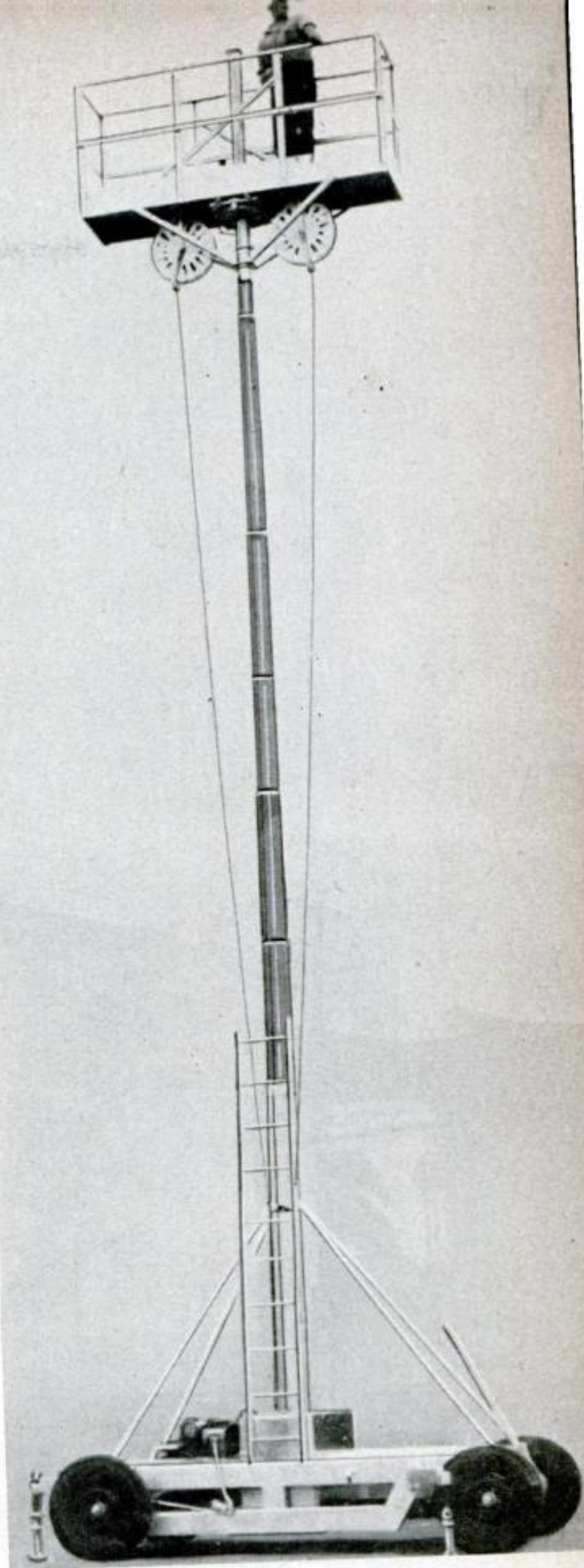
'Copter Enacts Rescue Role

LOWERING a rescue worker to the roof of a "bombed-out" building, a Sikorsky S-55 helicopter shows how it could help after an atom bomb hit. The scene is a simulated bomb-wrecked area at the Federal Civil Defense Training Center, Olney, Md.



GIs Get Plastic Longjohns

BELIEVE it or not, this is underwear—the kind that GIs wore in Korea this winter. It is made of plastic resembling sponge rubber, filled with tiny cells that keep you warm even with a wet skin—and afloat, too. Cotton jacket and overalls are worn over it.



Lifts Three Tons Four Stories

THIS hydraulic lift and jack can hoist a maintenance crew 38 feet in the air—and carry a 6,000-pound load while doing it. Made by Hamlin-Klock Corp., of Pasadena, Calif., it is powered by a 7½-hp. motor that drives hydraulic columns.

Are Rear-Engine Cars Coming?



REAR-ENGINE "CENTAUR" built by John Palermo at a cost of \$2,200 made a hit at the World Motor Sports Show in New York last month. Powered by a 1942 Ford four-cylin-

Recent trends in styling and engineering have injected new life into a controversy that has raged since horseless-carriage days.

By Kendall W. Goodwyn

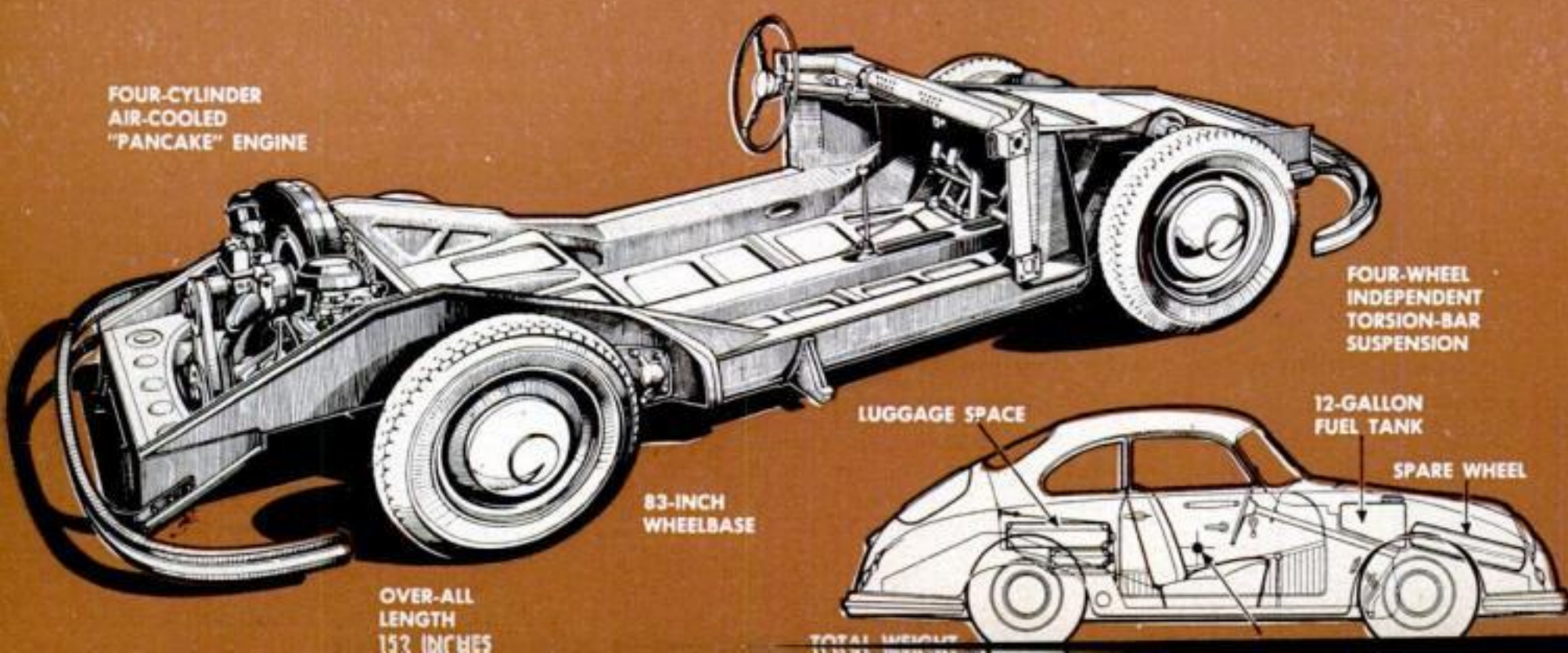
IN Flushing, Long Island, a young mechanical engineer named John Palermo has built himself a sports car that is really an eye-stopper. (Take a look at the picture above.) When Palermo pulls up in front of his home in this knee-high job with the long hood stretch-

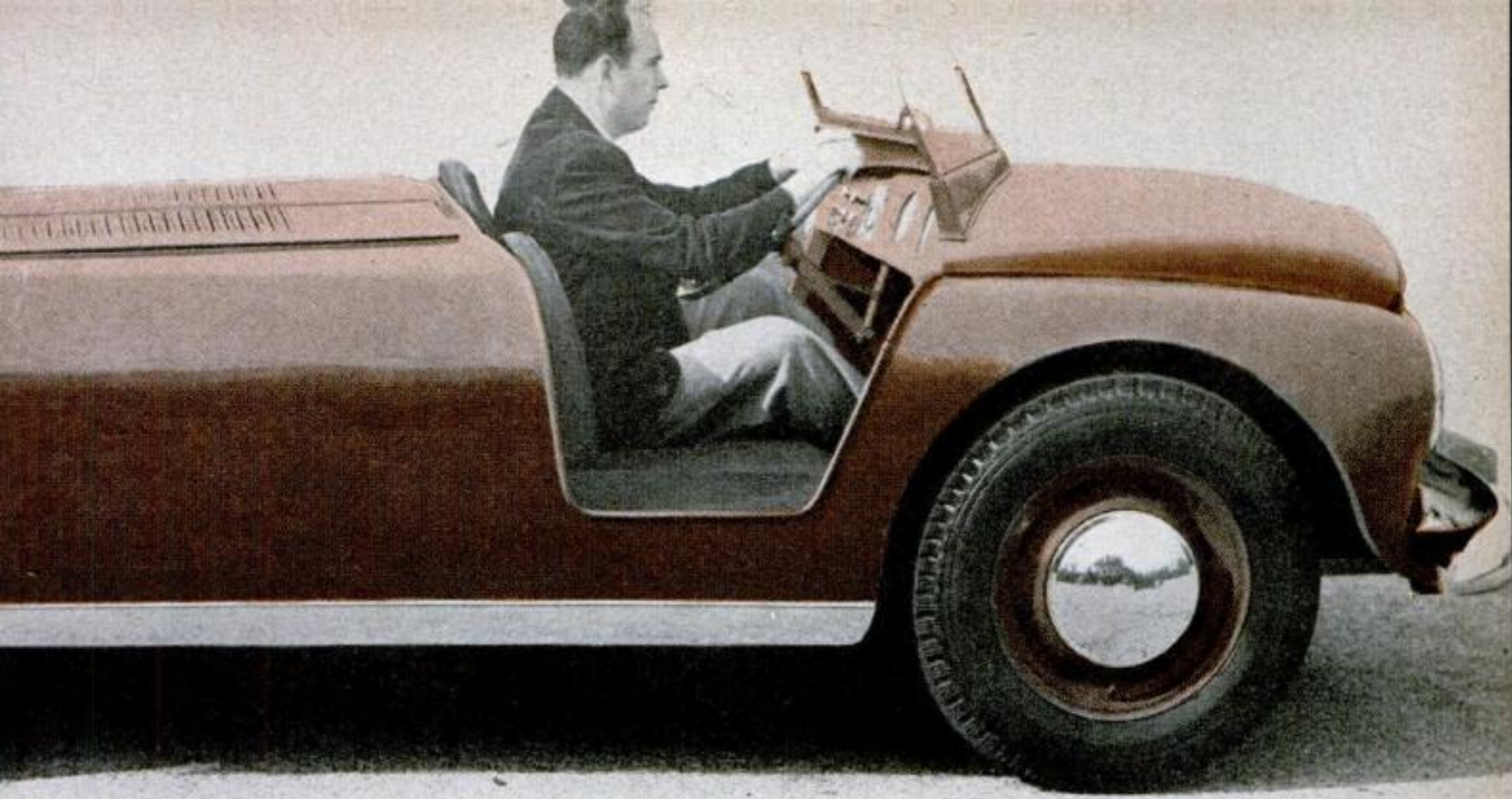
ing out *behind* him, he usually has to face a barrage of questions before he can get into the house. Invariably, the first query is: "Why is the engine in back?"

To this, Palermo replies quickly, "Because that's where it belongs." If his buttonholer persists, he adds, "Because moving the engine weight to the rear gives me maximum traction on the driv-

INSIDE: Porsche's "pancake" rear engine (the four cylinders are horizontally opposed in

pairs at right angles to direction of travel) delivers 40 horsepower, drives car to 85.





der light-truck engine with compression upped from 6.5 to 7.5 to 1 and horsepower from 36 to 45, the Centaur tops 80 m.p.h. Twin carbs feed two cylinders each. Four-

wheel independent torsion-bar suspension adjusts for ride control. Front of car is reworked from Nash Rambler, the rest custom-built. Height less windshield: 35 inches.

ing wheels. And eliminating the drive shaft increases mechanical efficiency and makes it possible to build the car closer to the ground."

Then he makes a dash for the house, because this front-versus-rear controversy is likely to start a heated hassle anywhere. Try it yourself next time you're in a group of men.

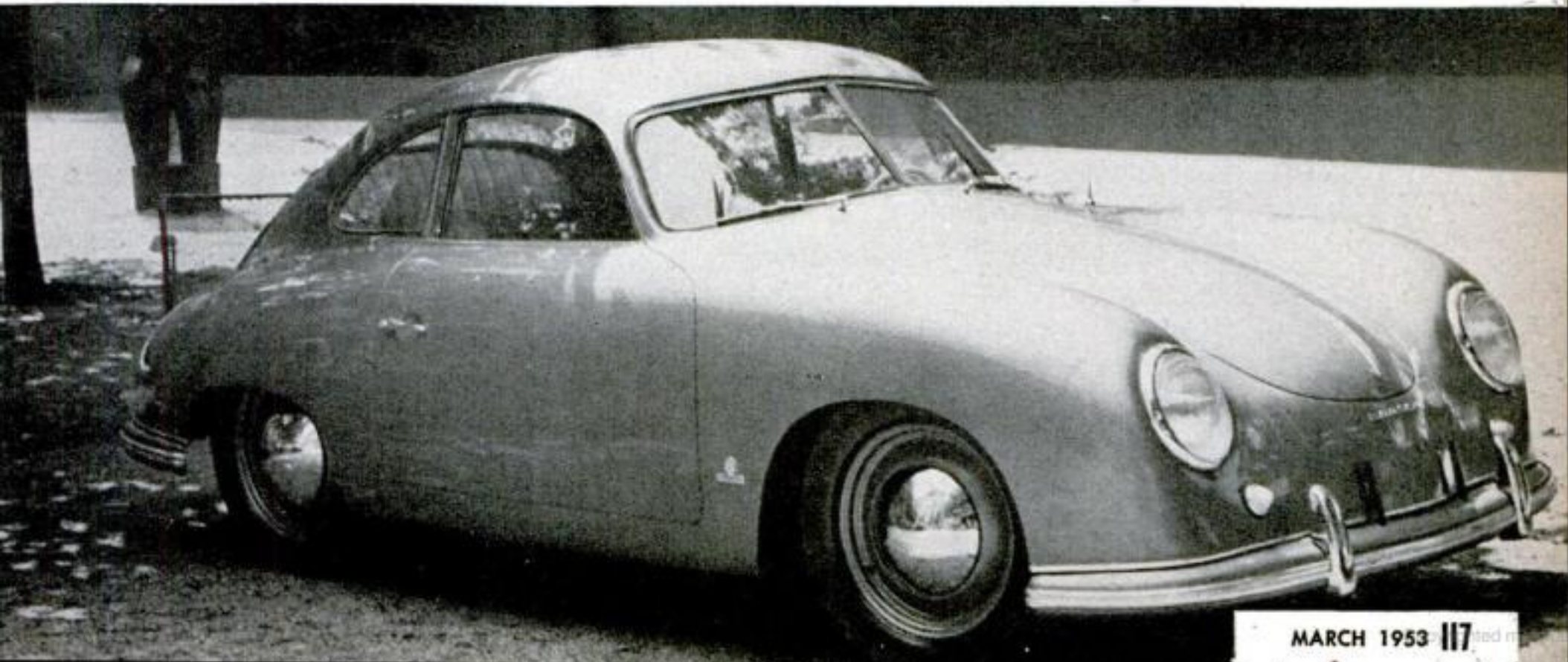
Palermo's plausible arguments are only one small sample of the rear-engine adherents' impressive list of advantages to be gained by shifting the power plant "back where it belongs."

A well known New York automotive engineer, Alexis von Freymann, told the writer: "I am convinced that the ideal location for the engine is at the rear of the car. That is where it does its work. Engine noise, heat and gas fumes are behind the passengers. Braking effort and traction are improved by shifting engine weight to the rear axle. It is claimed that this impairs directional stability but—" von Freymann grinned—"in actual practice this is not a critical factor at speeds under 150 miles an hour."

Emphasizing the point about traction,

OUTSIDE: Slick postwar sportster was the final creation of the late Dr. Porsche, German de-

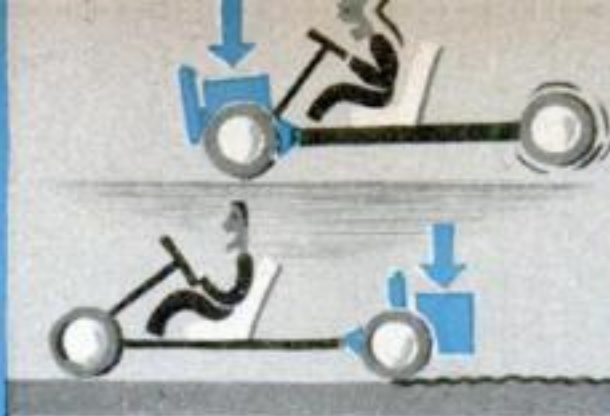
signer of the Volkswagen and famed prewar Auto Union race car, both also rear-powered.



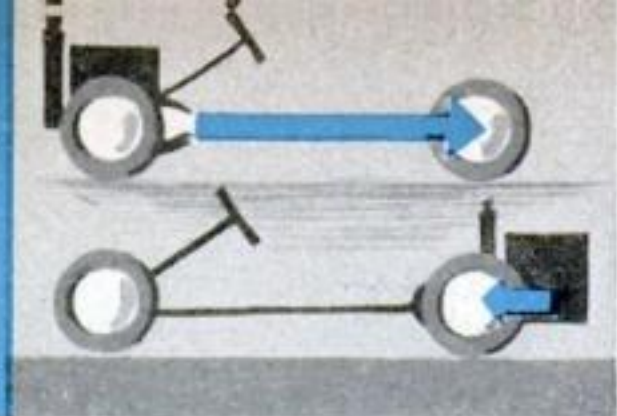
Pro

These are the five main arguments advanced by each side for and against rear-engine design.

Con



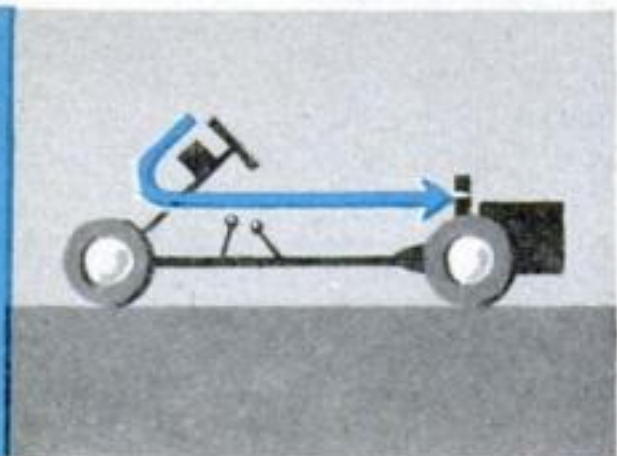
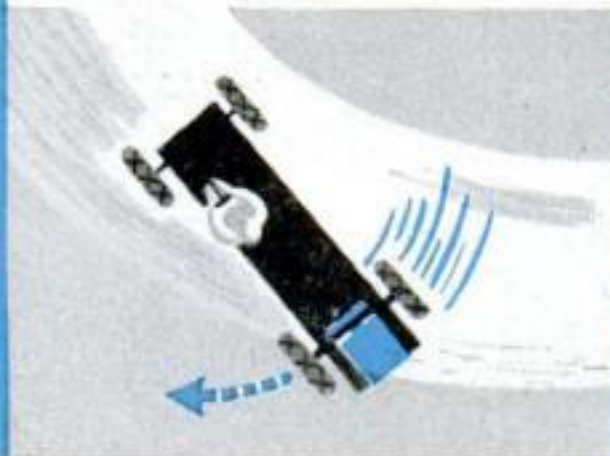
ENGINE WEIGHT on driving wheels gives better traction.



ELIMINATING DRIVE SHAFT adds efficiency and lowers the car.

TOO MUCH WEIGHT at rear creates tendency to skid.

MOVING ENGINE BACK complicates controls, cooling system.



William B. Stout, a former president of the Society of Automotive Engineers who built the rear-engine Scarab some years ago, says: "Obviously, the *most* weight should be over the wheels that push the car; the *least* weight on the wheels that do the steering. With the engine weight forward, the driving wheels cannot get enough grip in mud, sand, snow or ice to use more than a fraction of the engine's horsepower."

Braking Improves, Too

Another engineer is seriously concerned about braking efficiency: "With engines moving farther forward and too little weight on the rear wheels, the front wheels are contributing much more than their share—as high as 62 to 63 percent—of the braking effort. If the engine were moved back and passengers forward, weight distribution would be right—that is, more weight would normally rest on the rear wheels."

Why is that desirable?

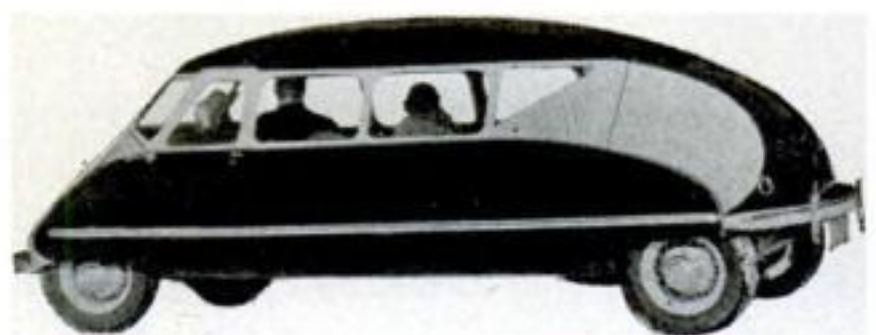
"When you hit the brakes, weight on the front wheels is sharply increased. With the rear end heavier, weight on all four wheels would tend to equalize when you jammed on your brakes in an emergency—giving you maximum adhesion when you needed it most."

But how about tire wear?

"Your front tires wear faster now for three reasons: alignment adjustments—camber and toe-in; additional road friction because the front wheels turn; and third, as mentioned before, the front wheels do more than their share of the braking. With engine weight shifted to the rear, this last condition would be corrected."

In answer to the immediate objection of most motorists that they "want something solid up front in case of a head-on crash," one advocate of rear-engine design has this to say: "The value of the engine ahead of the passengers as a safety factor is purely psychological. What really counts is the 'crumple rate'—the rate at which the car will telescope in a crash. The precise degree of rigidity

Two Experimental Rear-Engine



The Scarab, designed by William B. Stout.



BETTER VISIBILITY for driver reduces accident hazards.

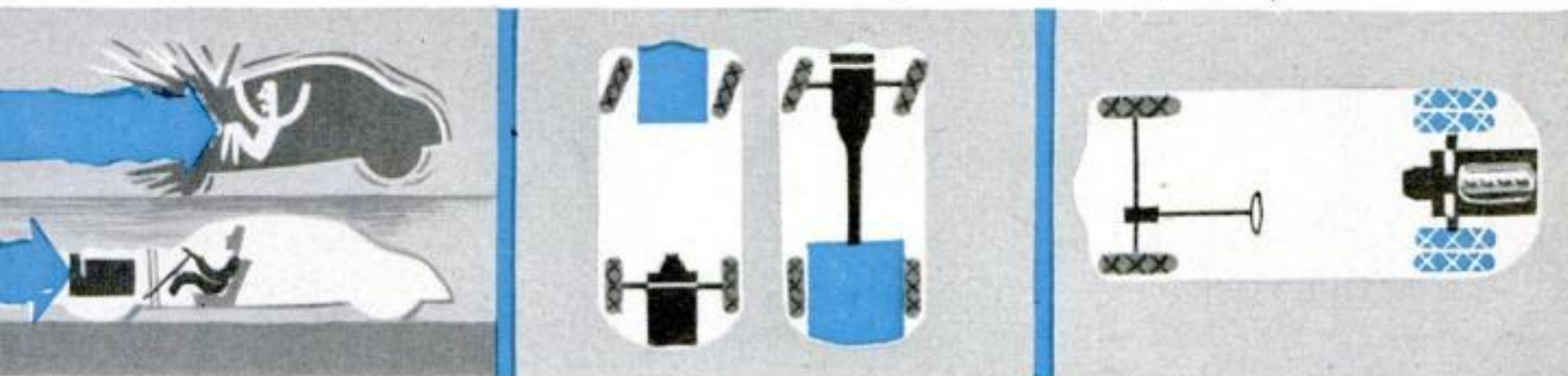
ENGINE NOISE, heat and gas fumes are behind passengers.

STEERING IS EASIER with less weight on front wheels.

ENGINE AHEAD of passengers is a safety factor in a collision.

USABLE LUGGAGE SPACE at front of car is considerably smaller.

EXCESSIVE weight at rear might require dual wheels.



to achieve optimum shock-absorbing effect is easier to control without the engine to consider."

That builds up to a rather good case for rear-engine placement. But before you rush out and trade in your "obsolete" front-engine car perhaps you'd better hear the other side of the story.

Chrysler's Engineering Division, which has conducted considerable research on rear-engine cars, sums up its conclusions: "... the disadvantages of placing the engine in the rear of the car profoundly outweigh the few and relatively minor advantages."

Most of the major auto companies have at various times built experimental rear-engine cars. "None of them," says a General Motors spokesman, "was ever con-

sidered superior to front-engine automobiles."

And Ford states: "The present overall car arrangement is the most advantageous from standpoint of ride and handling, 'package size,' weight and cost."

There Are Advantages—But . . .

The Big Three—GM, Chrysler and Ford—are in close agreement on the principal drawbacks of the stern-powered vehicle. They concede, in theory, such possible benefits as improved traction, better distribution of braking effort, and elimination of the floor tunnel, but—

"With engine, transmission, differential, articulated axles, etc., concentrated in the rear, a serious imbalance results which manifests itself in a strong tendency to skid. The situation might be likened to an arrow trying to fly feather foremost with the heavy point at the rear."—Chrysler.

"Luggage area available between front wheels is smaller because space must be provided for wheel housings—for the wheels to turn. It is doubtful whether many buyers would want luggage space reduced."—GM. (Even your most die-hard rear-engine proponent is usually stymied on that one. But it should be noted that the five-passenger Tatra, a Czech rear-engine car, has the luggage

Cars of the Nineteen Thirties



The English-built Burney Streamline.



THRIFTY FRENCH RENAULT gives 40 to 50 miles per gallon. Compact, rear-powered sedan weighs 1,245 pounds, will do 65. Renault also makes U.S.-style front-engine car.



THE REAR-ENGINE VOLKSWAGEN, or "people's car," developed in Germany before World War II, is now being produced in quantity—135,970 last year, one-third for export.

space between rear seat and engine.)

In reference to the safety factor—"If you were riding in a railway car, and were involved in a head-on crash, where would you rather the locomotive be—ahead of your coach or behind it?"—Chrysler.

Chrysler admits that a lightly weighted front end would mean easier steering—but points out that with power steering this factor is negligible. Ford engineers will not concede any advantage here, power steering or not: "Reduced weight and great weight variation on the front wheels according to passenger load result in unstable steering and handling."

Controls Too Complicated

All three of the major motor companies mentioned the complications of remote accelerator and transmission controls; the "plumbing" problems involved in engine cooling and car heating; the difficulty of servicing a power train in which all the components are merged in one package; the possibility that larger or even dual rear wheels might be required with such a concentration of weight at the back; the tendency to skid; the safety factor of having the engine up front as a buffer; and the loss of luggage space.

As for the effect on styling, Ford says: "Functional and space requirements would affect styling adversely, resulting possibly in a more streamlined or 'fast-back' design which at least at present would be considered old-fashioned."

These then are the practical considerations. Do they rule out, once and for all, the possibility of an American-built rear-

engine car? Not necessarily. To a neutral observer, the score adds up something like this:

Rear-engine location is eminently suitable for such small, light cars as the Renault and the Volkswagen, where engine weight—and consequently, weight distribution—is a minor problem (Renault engine weighs about 100 pounds vs. Cadillac's approximately 800); and where a small luggage space is adequate, for these cars do not ordinarily carry several passengers on long trips.

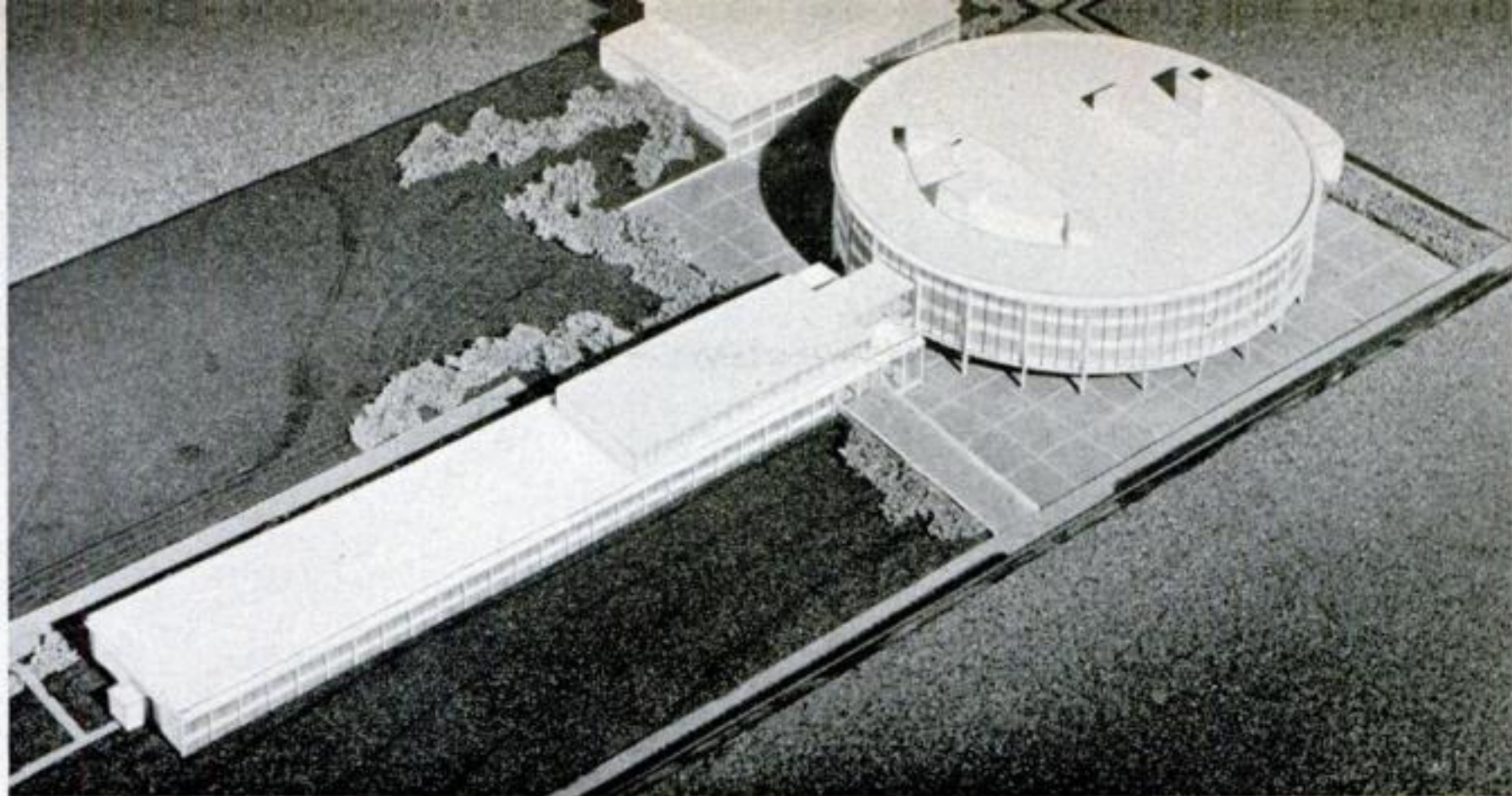
Rear-engine design is also fine for a lightweight luxury car like the \$4,000, two-seater Porsche, which has a very respectable luggage space behind the seat.

However, for the average American motorist who wants a six-passenger sedan with a raft of horses under the hood and a family-vacation trunk compartment, front-engine location would certainly seem to be the happiest compromise . . . *at the present time*. Nevertheless, certain trends—in both engineering and styling—indicate that this may not always be so.

Rear-Engine Problems May Vanish

Engines are rapidly becoming lighter and more compact. Thus, the weight-distribution factor may eventually diminish in importance. Moreover, the public is beginning to accept the idea that a car need not boast a block-long hood to suggest power and prestige.

If these trends continue, both the engineering objections and the problem of public acceptance may gradually disappear. When that time comes, one or the other of the big U. S. auto makers will probably take the plunge. **END**



This Is a High School?—Banjo Design Cuts Travel Between Classes

A BANJO-SHAPED high school that will look like the model above is expected to save student's shoe leather—and New York City's dollars. The circular "head" houses auditorium and cafeteria at its center and has all non-science classrooms around its 235-

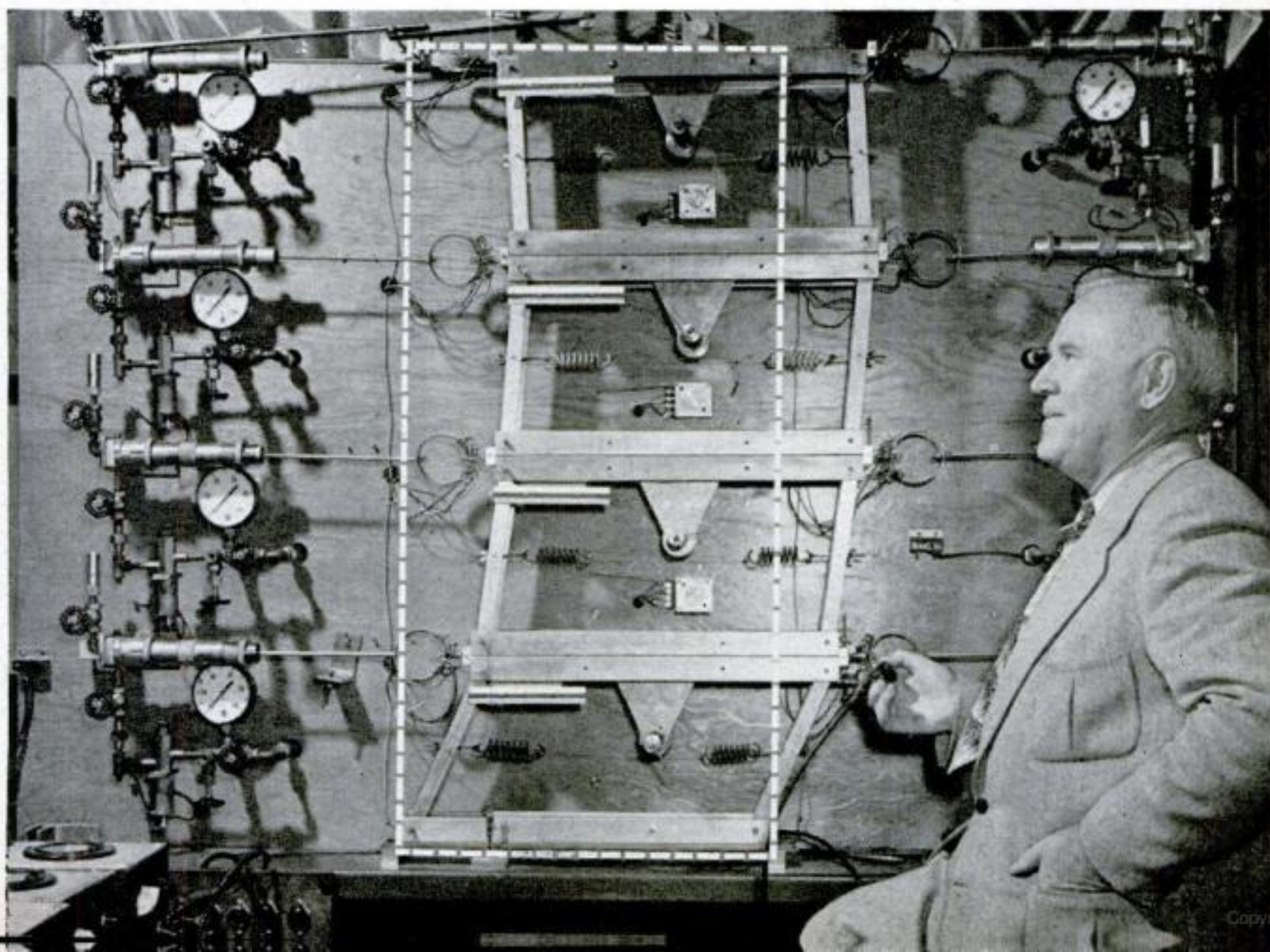
foot rim. This cuts corridor space, say Kelly and Gruzen, the architects, while centralizing utilities in the core saves money.

Labs and shops are in the long "arm," a gym in the rectangular building. The school will cost around \$6,000,000, serve 3,200.

This Is a Building?—Frames Show Bomb's Effect on Real One

MAKE-BELIEVE H-bombs blasting away at a make-believe building at Stanford University show (below) how bomb blasts would affect structures in U.S. cities. The "building" is formed of metal frames which can be adjusted to duplicate different kinds of construction. At a touch of a switch,

four air-driven pistons wham in from one side. A split second later, the top piston shoves down on the "roof." Then four more pistons hit in from the opposite side. That's the way a bomb would exert pressure. Dotted lines on photo show how a "bomb" has thrown the building out of whack.





Frit must be worked two inches into soil.

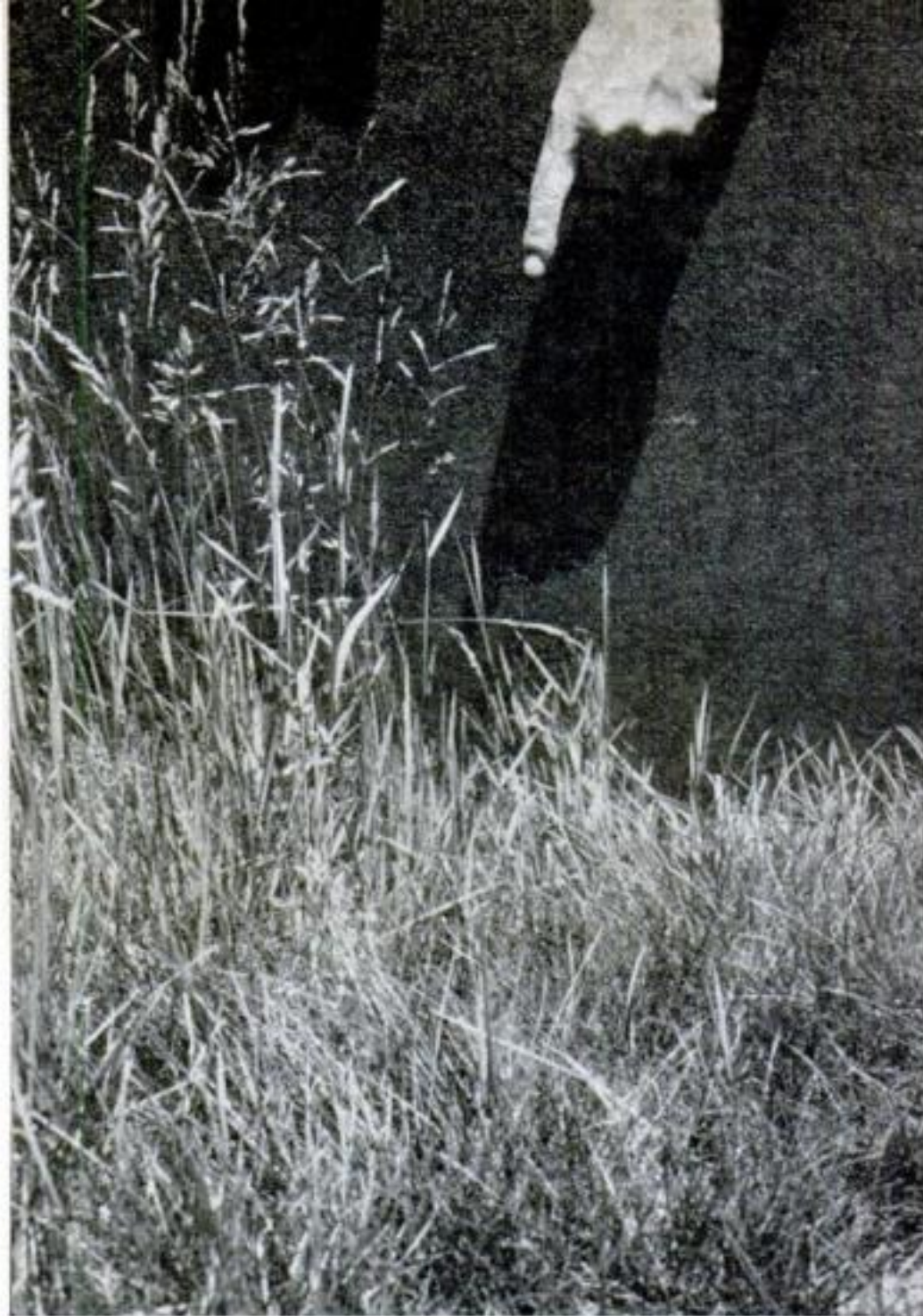
They Feed Glass to Plants Now...

GROUND glass for breakfast would ruin your health—but there's a new kind you feed to plants that makes them flourish like Jack Benny's bank account. Called "agricultural frit," it provides the mysterious trace elements essential to plant growth—and in a form that even amateurs can use without risking harm to their plants.

Marketed under the name FTE—Fritted Trace Elements—the product contains manganese, iron, zinc, copper, boron and molybdenum. Applied to greenhouse flowers it promotes earlier blooming and larger blossoms. Used on field crops, it has sent potato harvests up 40 percent, added a ton an acre to Maine corn crops, boosted cabbages, blueberries, tomatoes.

The minerals are melted into glassy porcelain enamel so that they won't wash

How frit boosted chrysanthemum growth.



The sprayed grass is on the right.

...And Mow

away in the soil as soluble salts do. Scientists believe the elements are released partly by ionic exchange with plant roots with which the frit comes in contact, and partly by slow weathering away of the glass. The action is so slow there's no danger of an overdose—and the frit lasts at least a full season, sometimes two or three.

Ferro Corp., a manufacturer of porcelain enamel, developed FTE in collaboration with a number of scientists, including Dr. F. L. Wind of Michigan State College and Dr. Norman F. Childers of the New Jersey Agricultural Experiment Station. Ferro will sell it directly to fertilizer manufacturers to add to their product, while du Pont will handle retail distribution of the pure product to homeowners.

Ferro's scientists say that they still don't know how to tell whether a soil is lacking in trace elements except in extreme cases. The only way to find out is to add them—and see if crops grow better.



MH reduced mowing along Merritt Parkway in Connecticut from 19 times a season to once.

the Grass with Rocket Fuel

YOU can't throw that lawn mower away entirely—but it looks as if you'll soon need it only once a year. That's all the cutting required after grass has been sprayed with a new chemical, also used to zoom rockets. Called maleic hydrazide, or MH, it's already available for big acreages and for homeowners to use on borders and hard-to-get-at corners.

MH must be applied evenly or the lawn will have a wavy effect. That requires a power spray—which is why it isn't feasible for home gardeners to spray a whole lawn with hand equipment. But before long you may be able to hire somebody with a power rig to do the job for you each spring. It is sprayed on when the grass has grown about an inch and a half. Then the lawn is mowed about three weeks later—for the last time that season.

The chemical works as an "anti-hormone," stopping the growth hormones from doing their job. The grass is uninjured but be-

comes dormant, just as it does in winter. It may become thicker at the base during this period, and because it doesn't mature—a brown stage in many grasses—it may be greener than untreated lawns. But just the right amount must be used or the grass will either start growing again or else turn brown from an overdose.

The spray has no effect on broad-leaved plants and there is little danger of its drifting where it isn't wanted. It doesn't hurt animals or people. About 10 pounds of MH are needed for an acre. At present the price in small quantities is about \$1.00 an ounce—which will cover about 250 square feet.

MH is made by the U.S. Rubber Co., and will be marketed by a number of firms. Right now the Loamium Co. is selling it under the name of Kem-Kut.

Are you looking for a site for a new home? See the April issue of Popular Science Monthly for an expert's advice.

Navy Planes Now Angle In

MANY Navy bombers have such wide wing spans that they must operate dangerously close to the edge of a carrier's deck in order to clear the ship's island structure. On the USS *Antietam* the problem has been solved by adding an angled section to the port side, as shown in the aerial photo at right. This makes for safer landings by directing the planes away from the island, and also will make it possible to carrier-base some larger bombers. The new supercarriers now under construction will also have the angled deck, even though they will have no island obstruction.



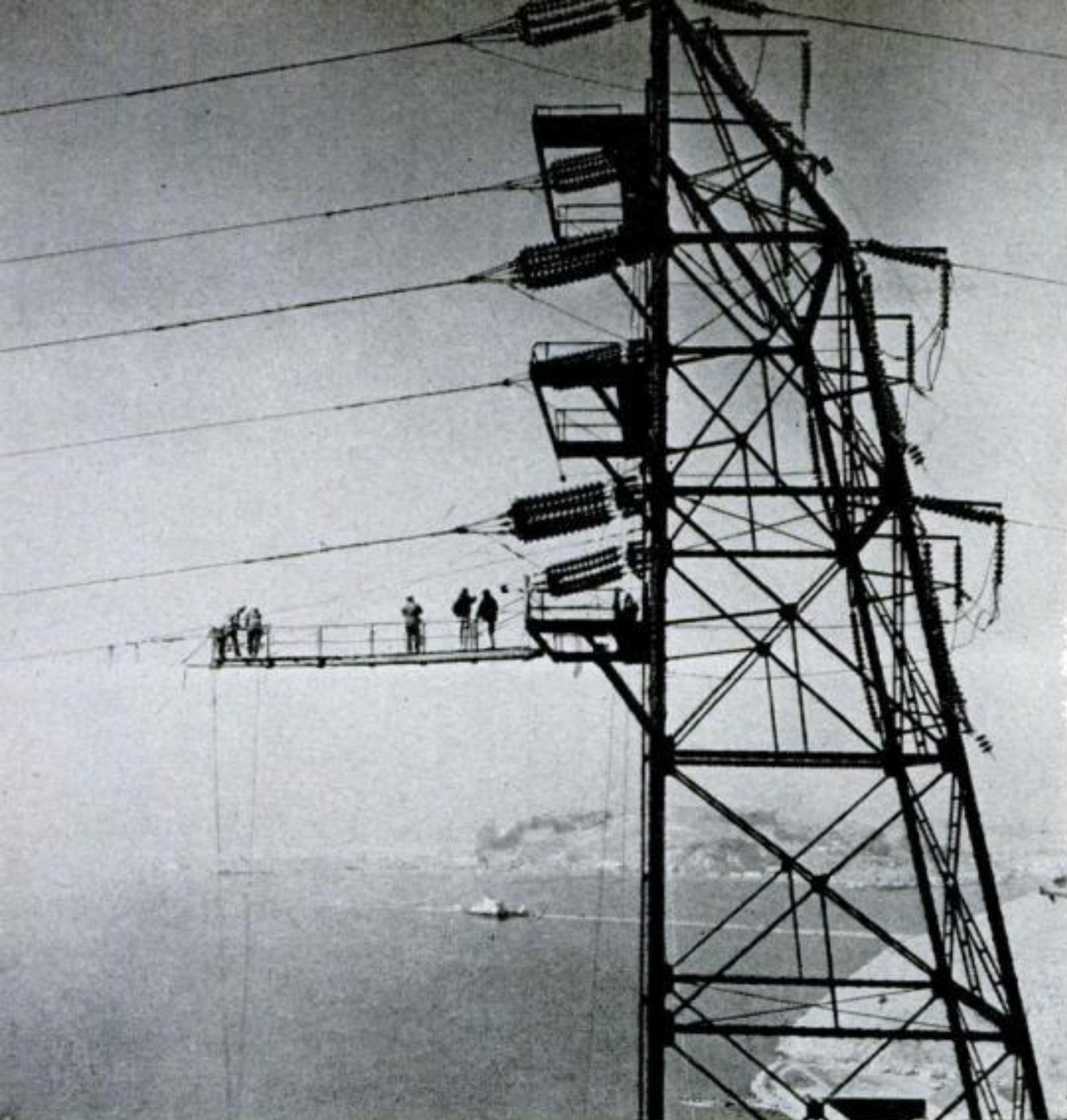
Sink or Swim?

METAL floats and wood sinks, if the metal is lithium and the wood *lignum vitae*. The specific gravity of lithium (.534) is only about half that of water (1). *Lignum vitae*, a hardwood from which ship's propeller bearings are sometimes made, has a specific gravity of 1.25.

But what about the more common solids and liquids listed in the next column? Will they sink or swim? The answers, with the specific gravity of each given, appear upside down at the bottom of the column. Rate yourself unusual if you can run up a perfect score.

- | | |
|-------------------|----------------------|
| 1. Chalk_____ | 8. Turpentine_____ |
| 2. Ice_____ | 9. Camphor_____ |
| 3. Celluloid_____ | 10. Sealing Wax_____ |
| 4. Tar_____ | 11. Leather_____ |
| 5. Paraffin_____ | 12. Glycerin_____ |
| 6. Mica_____ | 13. Milk_____ |
| 7. Rubber_____ | 14. Gasoline_____ |
| 15. Butter_____ | |

Answers: 1. Sink 1.9; 2. Swim 0.917; 3. Sink 1.4; 4. Sink 1.02; 5. Swim 0.87; 6. Sink 2.6; 7. Sink 1.1; 8. Swim 0.87; 9. Swim 0.99; 10. Sink 1.8; 11. Swim 0.86; 12. Sink 1.26; 13. Sink 1.028; 14. Swim 0.66; 15. Swim 0.86.



They Fight Wind Over Frisco Bay

WHEN high winds howl across San Francisco Bay, power lines take a beating—and so do the men who have to keep them in repair. Severe weather conditions that prevail in the area challenge the ingenuity of maintenance crews. At left you see how they met one situation when a cable of the Pacific Gas and Electric Co. threatened to snap, cutting the city at the Golden Gate off from hydroelectric power originating in the High Sierras. After current in the line was turned off, the men thrust out a 60-foot telegraph pole, lashed and braced it. On it they built a railing-enclosed catwalk.



Tractor Hauls Freight Cars

HUSKY enough to pull five freight cars, this big tractor will do the work of a medium-size switching locomotive at less cost. An off-center coupler lets its deep-cleated pneumatic tires run on the ballast to left and right of one running rail. Unlike ordinary switch engines, the Hough Payloader track-hops its way from one car-hauling job to another, eliminating complicated moves through switches.

They Say Now.....

"The doctor's mistakes are buried in the grave. Trees and ivy cover the architect's failures. The engineer's works are out in the open where all men can see them."
—HERBERT HOOVER.

"Few drivers survive the experience of braking their vehicles in an emergency at 70 miles an hour."—THOMAS N. BOATE, INSURANCE EXECUTIVE.

"I hope man never learns to control climate . . . if he does it will produce more trouble than the atom bomb. Look at the difference between the ideas of the tourists and the farmers on rain."
—DR. H. W. AHLMANN, SWEDISH CLIMATOLOGIST.



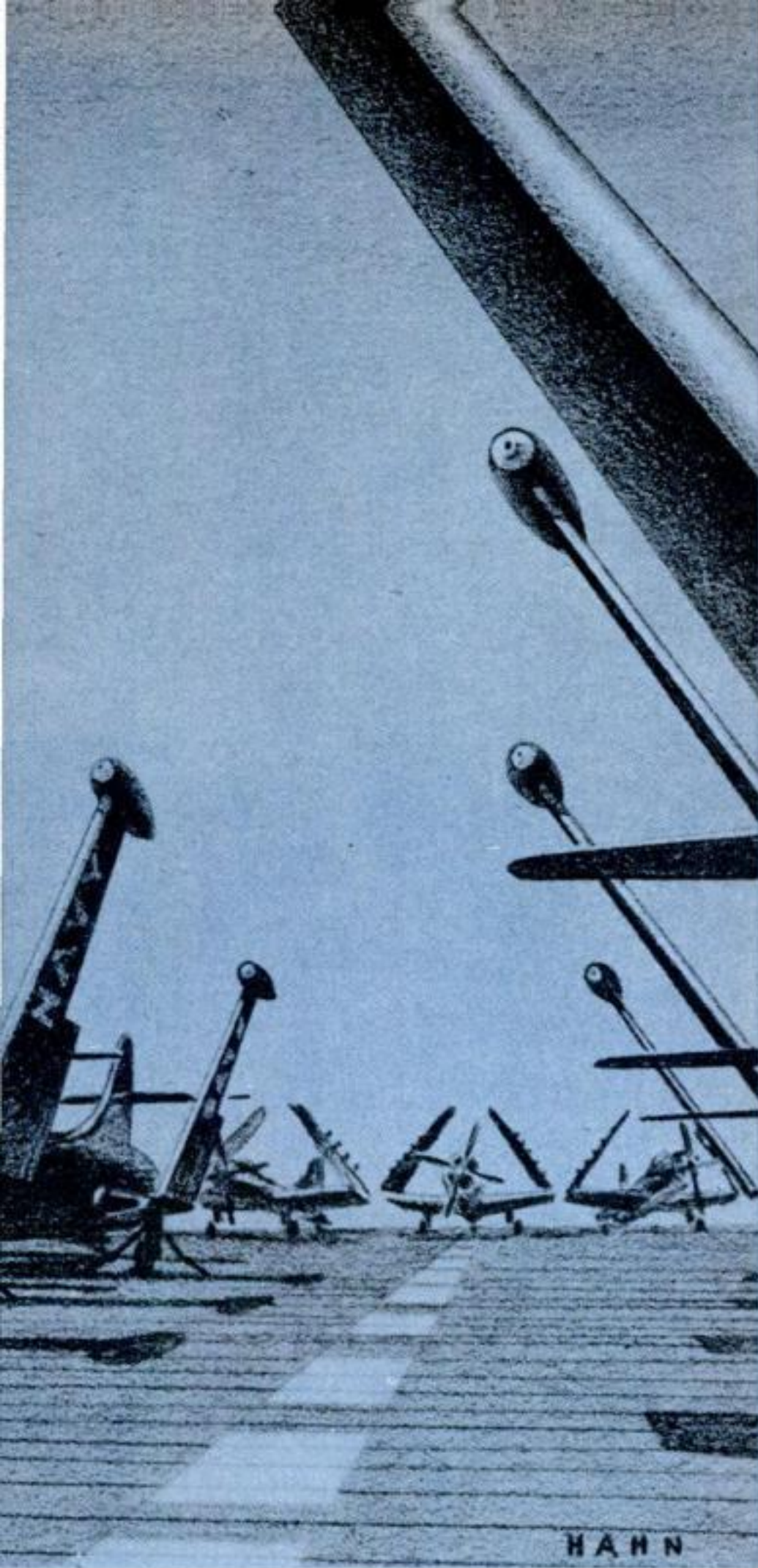
F9F Panther jets, their wings folded, ride the USS *Boxer*'s flight deck toward the Korean

Battling 'Boxer' Flings 1-2 Punch Off Korea

THESE drawings dramatize one of the heroic tales of the Korean war: the saga of the aircraft carrier USS *Boxer*.

In 30 months the *Boxer* has sent her Skyraiders, Panther jets and Corsairs on more than 60,000 sorties against the enemy. Rushing planes across the Pacific, she has twice broken speed records for the crossing. The feats of her airmen have become legend, and her crew has more than once set records for fast refueling and ammo loading.

Recreating scenes no camera could catch, the drawings were made by Herb Hahn,



coast. Carrier flies about 100 planes.

officially a photographer first class, from rough sketches done on the flight deck and aboard a helicopter circling the carrier. They are chosen from 75 drawn over 10 months.

Hahn, a Los Angeles movie artist and book illustrator before being called to active duty in the Navy, is now back in civilian life. His Navy work, shown here for the first time, will be displayed at the Fifth Annual California Hobby Show in Los Angeles, March 20 to 29. Later the Navy will show the pictures throughout the country.—
Andrew R. Boone.



HEAVILY LADEN Douglas AD takes off to hit Wonsan. Hahn got deck angle from 'copter.



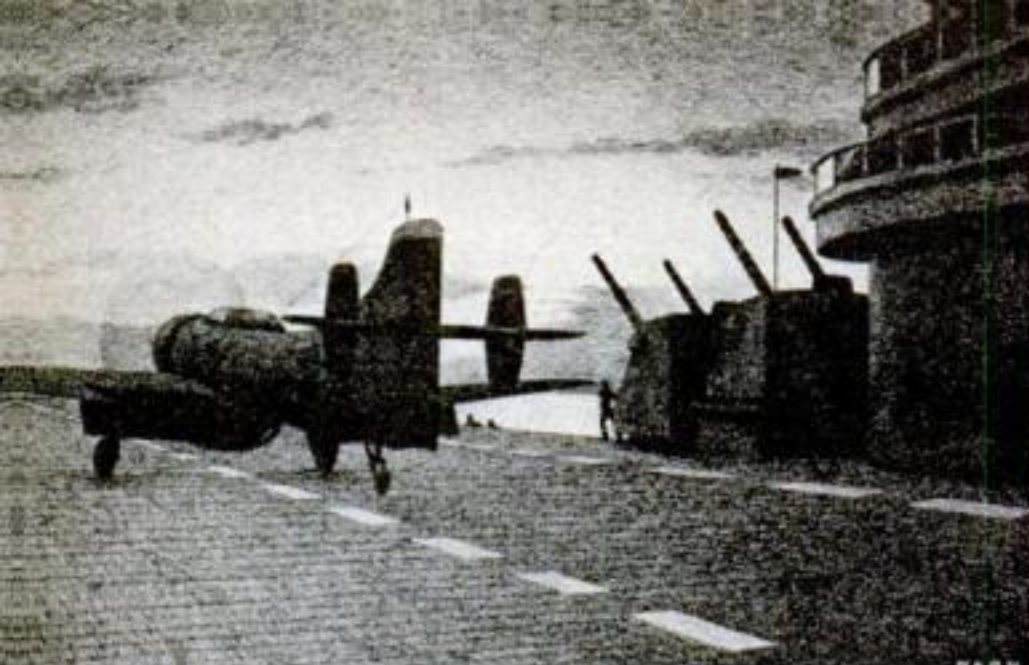
ABOVE THE CARRIER, Panther jets circle while forming into a group pattern for a strike.



PANTHER JET climbs for altitude. Clear forward deck on carrier shows take-offs going on.

HELICOPTERS replace destroyers as plane guards; pick up crashed pilots in seconds.





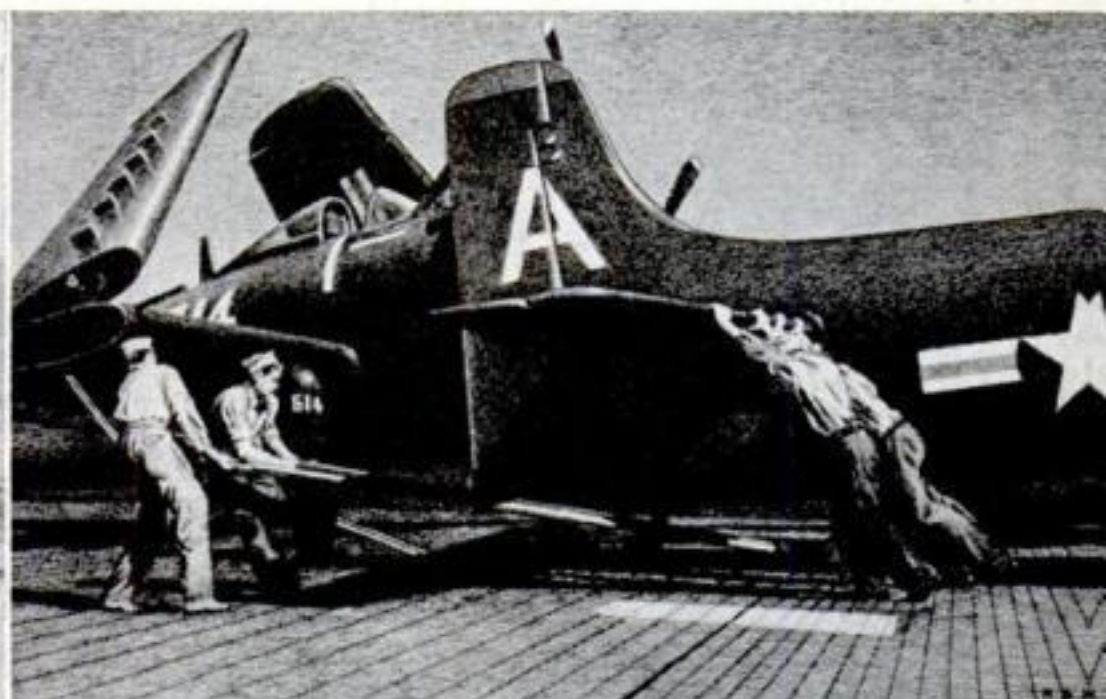
EACH DAWN, an AD Skyraider roars through gloom to look for subs with sensitive radar.



CORSAIR'S ROCKETS pin-point a Russian-made T-34 tank somewhere in North Korea.

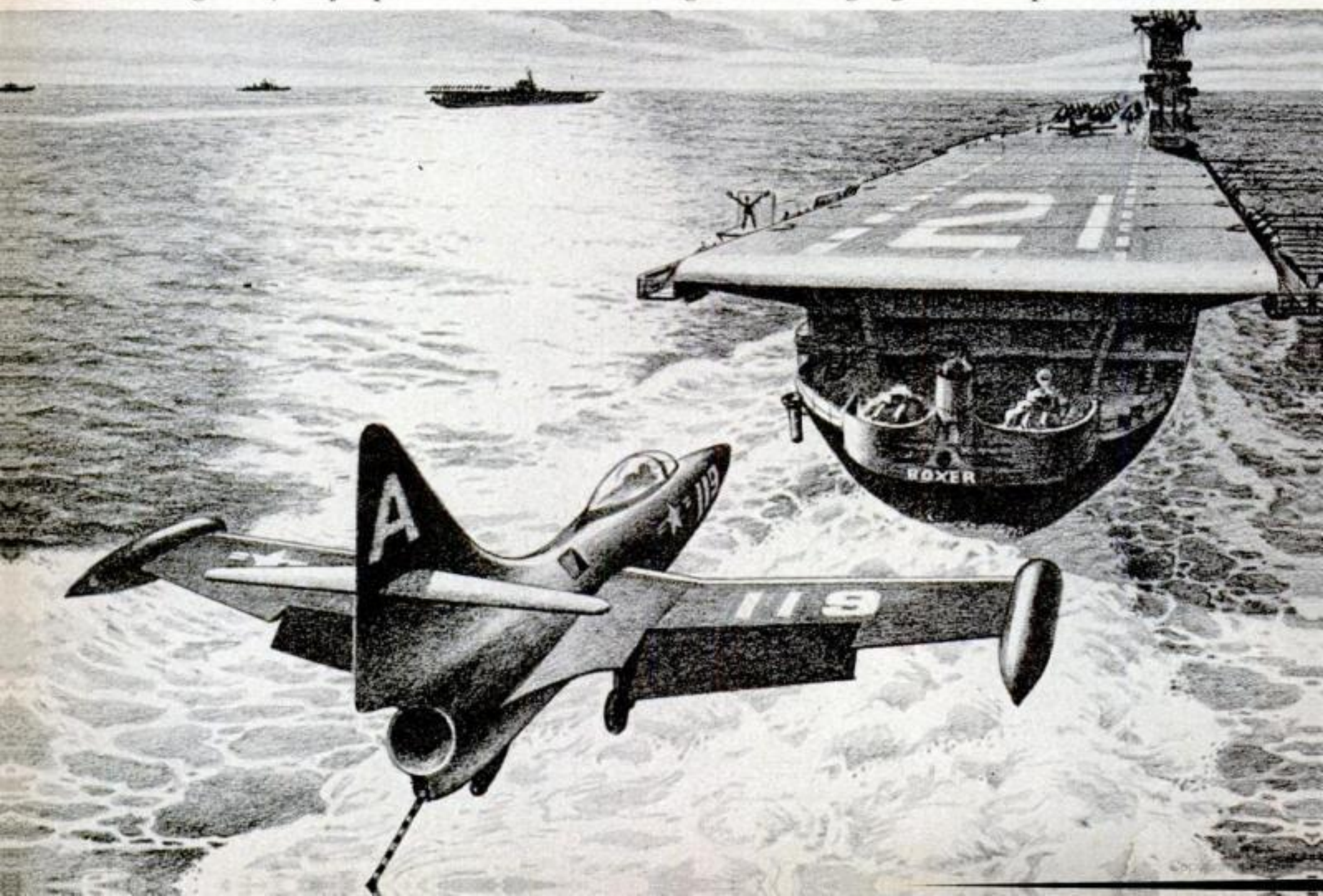


MOKPO, held by enemy on North Korean west coast, is attacked by the *Boxer's* Corsairs.



FIRST PLANES BACK from sortie must be rushed behind crash barriers or moved below.

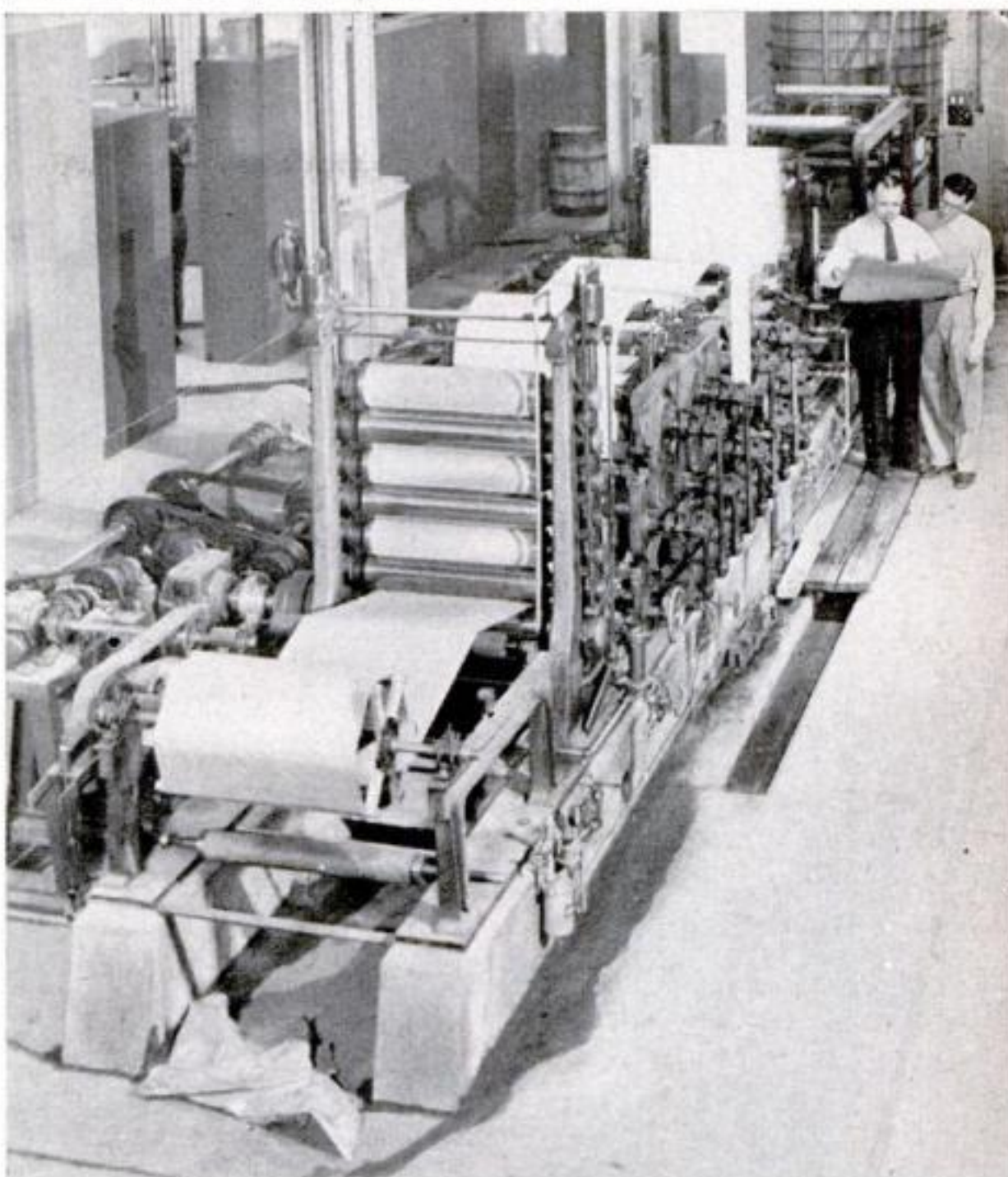
"In the groove," a jet pilot waits for the landing officer's flag signal to chop his throttle.



Scaled-Down Paper Mill Cuts Cost of Research

WHAT you see at the right is a complete paper mill in miniature. Instead of grinding forest giants to a pulp, it chews up "logs" of stovewood no larger than five inches around in a chipper run by a 30-horsepower motor. In contrast to a full-size paper machine that may run a city block in length, the little mill has a 40-footer that processes the pulp and turns out 25 to 250 feet of paper a minute.

Papermaking is a continuous-process industry and often a whole mill is shut down while engineers make test runs or solve production problems. This baby plant, set up in a laboratory of the Crown Zellerbach Corp. of Los Angeles, will let the big fellow keep on the job all the time.



Dutch Army Vehicle Humps Over Rough Spots Doing 15 M.P.H.

THIS Dutch gun tractor and personnel carrier can roll over the roughest terrain with a load of 11 soldiers, $1\frac{1}{2}$ tons of ammunition and a 105-mm. gun. It can travel the roads at 40 miles an hour on six wheels, slowing down to 15 in rough country. When the going gets really tough, another set of

wheels is lowered and the gun is automatically disengaged and trailed slack on a 55-yard cable to lighten the load. The driver disengages or recouples the gun, pays out or rewinds cable without leaving his seat. Engines and gearboxes used in the YA-318 are American-made.



WEARING THEIR NEW SUITS, lookouts take their places on the submarine *USS Gato*. To insure a watertight fit at wrist, mittens (left) of high elasticity go over steel rings embedded in sleeves. A steel ring is also molded inside the tops of the insulated boots. Elastic trouser cuffs stretch over the rings. A Navy spokesman says he believes that the only problem the suit does not solve is how to blow your nose.

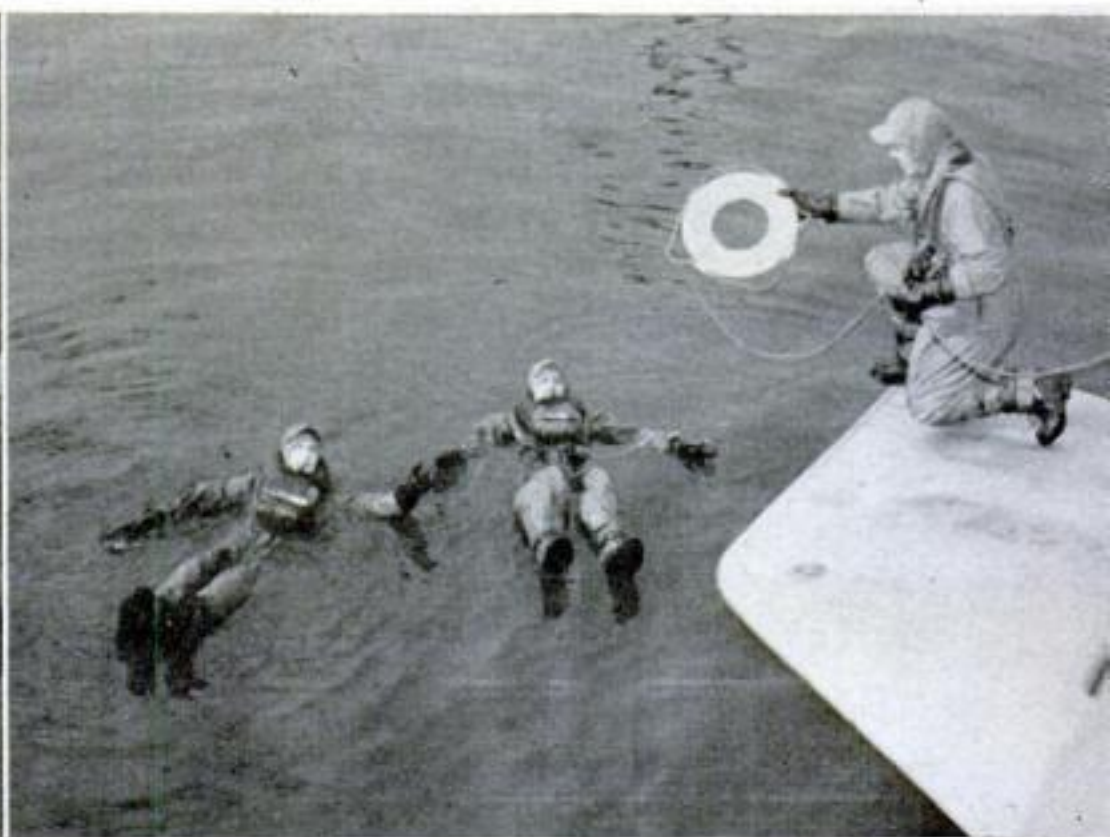
Spray Suit Keeps Sub Crews Dry

IT'S so cold and wet on the deck of a surfaced submarine that lookouts frequently cannot stay on duty more than 20 minutes. Wearing this new, neoprene-coated nylon exposure suit, the Navy claims they will be

able to keep working as much as six times longer. The suit has watertight seals at ankles, wrists and neck—even waterproof zippers—and is flexible enough to permit all normal movements.



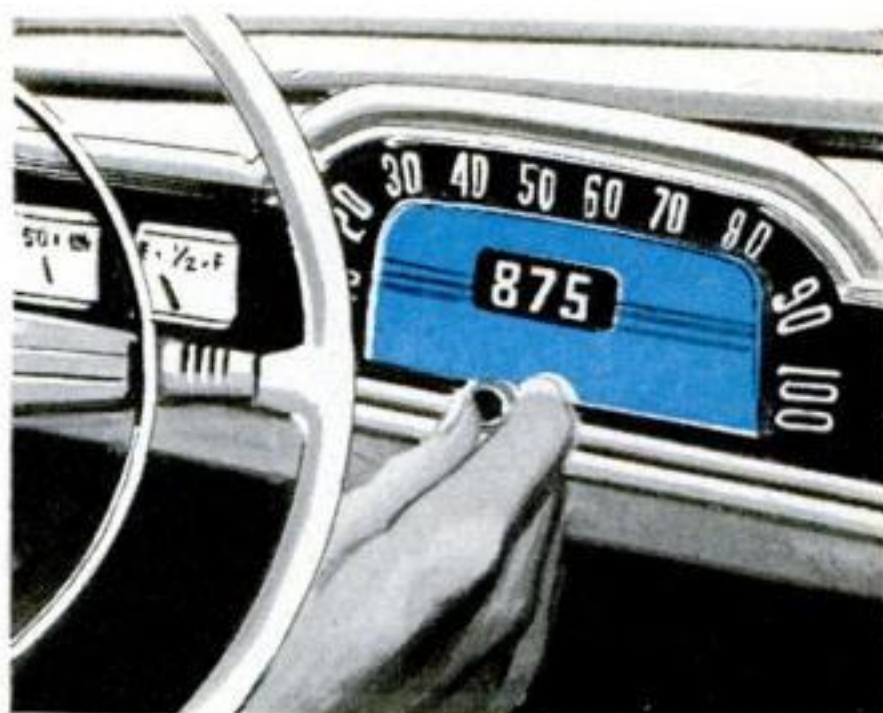
PRESSURE-SEALING ZIPPER is made waterproof by strips of rubber over metal tracks. In closing, strips are forced to overlap each other.



AIR TRAPPED IN SUIT will keep a man afloat for a short time if he falls overboard. A life jacket, however, is worn with the garment.

I'd Like to see them make...

Everyone has his own pet idea of some gadget he would like to see in general use. What is YOURS? *Popular Science Monthly* will pay \$5.00 for each one published. Use government postcards only. Contributions cannot be acknowledged or returned.



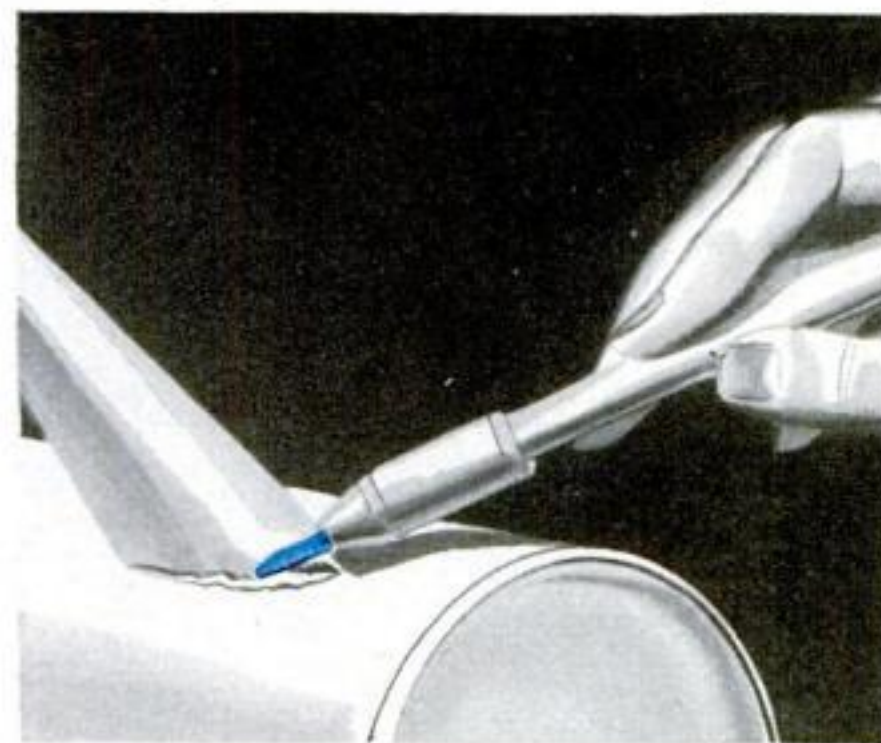
A MILEAGE INDICATOR that worked in reverse. You could set it at the distance to your destination and tell at a glance how far you had left to go.—*R. E. Henke, Chowchilla, Calif.*



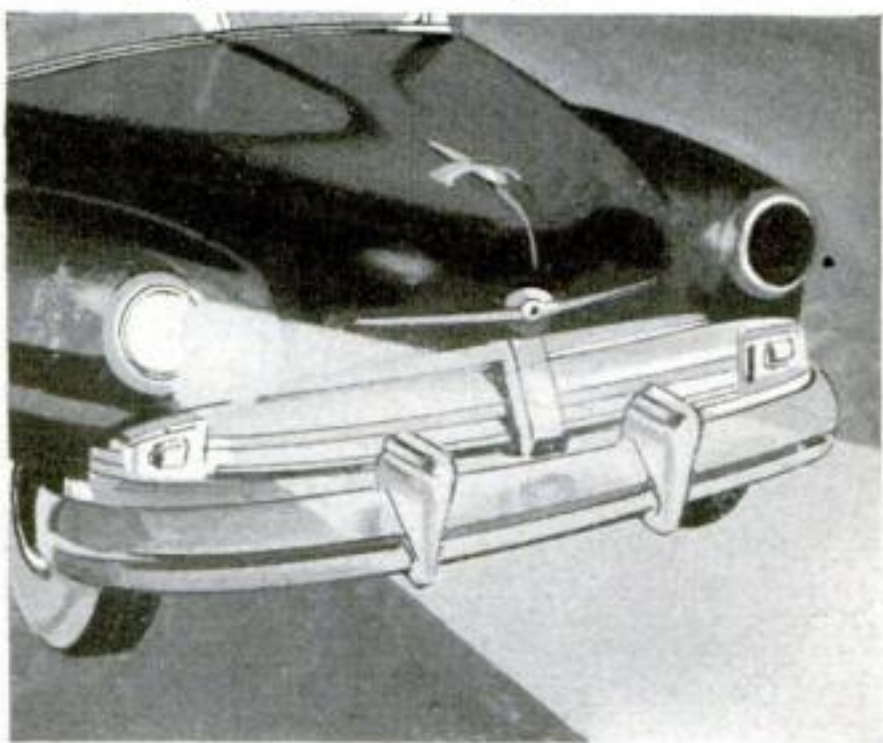
VENETIAN BLINDS with a light-sensitive device that would adjust them automatically to admit a constant amount of light, no matter how daylight varied.—*A. G. Howard, NYC.*



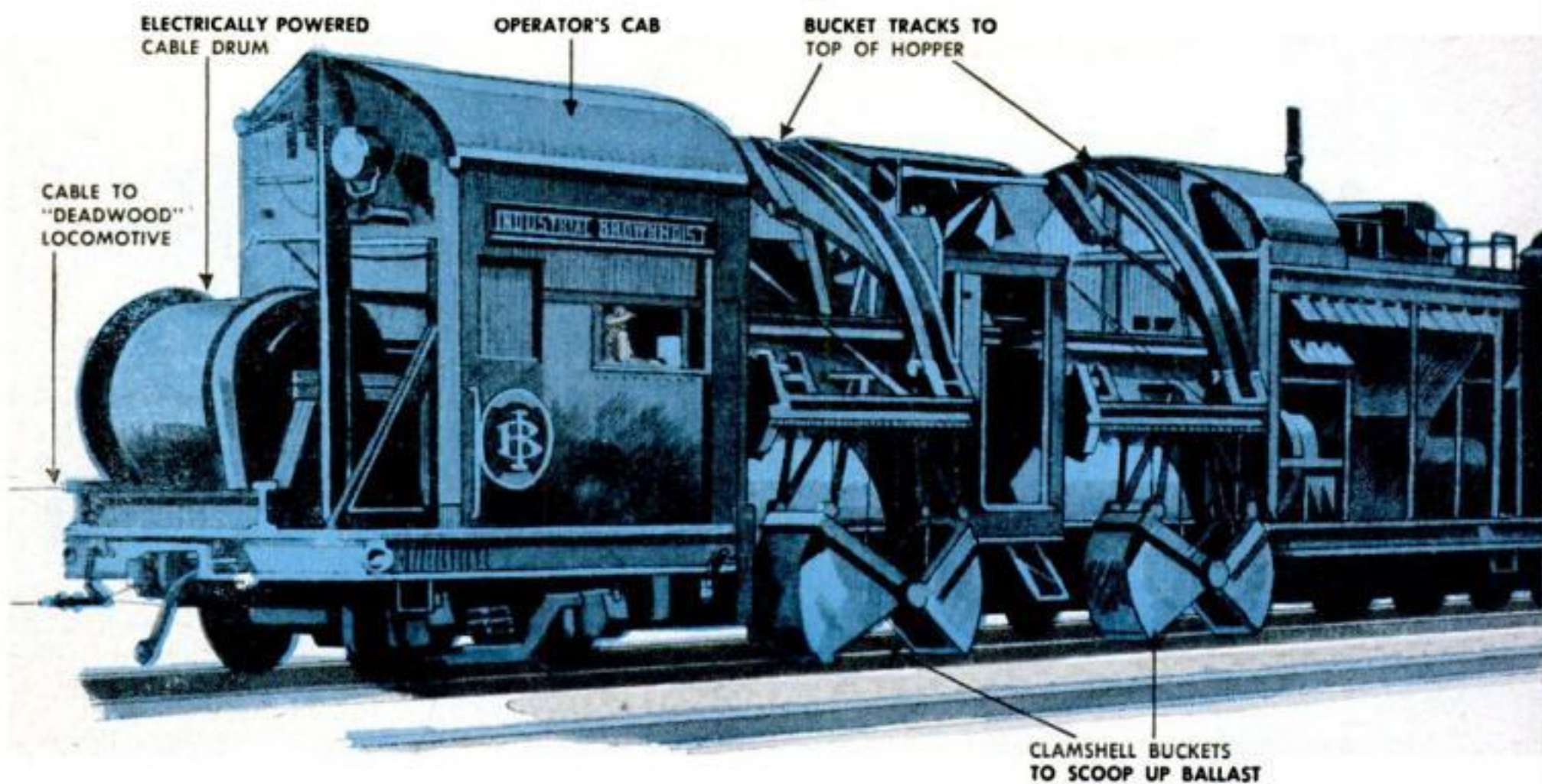
PHONOGRAPH RECORDS with a brief announcement at the beginning, telling what selection or movement you were about to hear played.—*Milton Wolff, Gibsonia, Pa.*



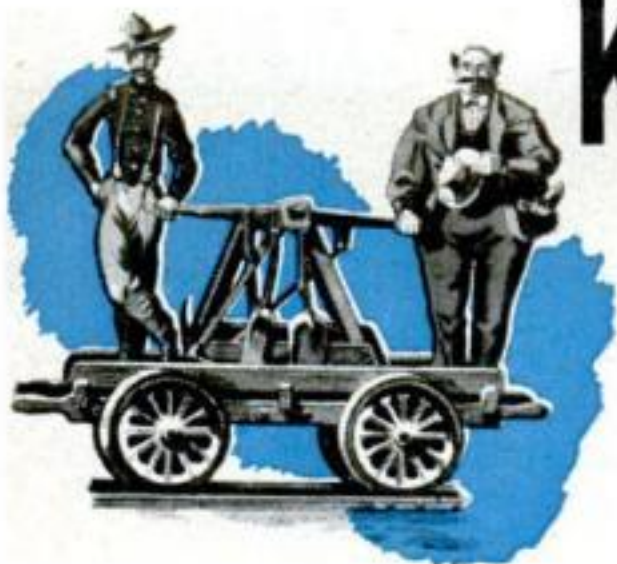
A SOLDERING IRON constructed like an automatic pencil. The soldering wire would be inside the iron and could be fed out as needed.—*James E. Blair, Portland, Ore.*



REFLECTOR RINGS around auto headlights. When a headlight burned out, the reflector would let oncoming motorists know which light was gone.—*J. M. Krzyscin, Avoca, Pa.*



Mechanical Gandy Dancers Keep Trains Rolling



By Henry B. Comstock

THE old ballast fork is fast going the way of the oil headlight and the open-platform observation car. Blame modern track machines for that, and for the disappearance, on many railroads, of the five-man section gang.

Time was when each crew, made up of a king snipe and four gandy dancers, took a belligerent pride in the smooth-riding qualities of its five-mile stretch of line. Once a year the division superintendent put every section to the water-glass test. Let a drop slosh over the rim of a well filled tumbler in his private car and the boys had to wait 12 months for

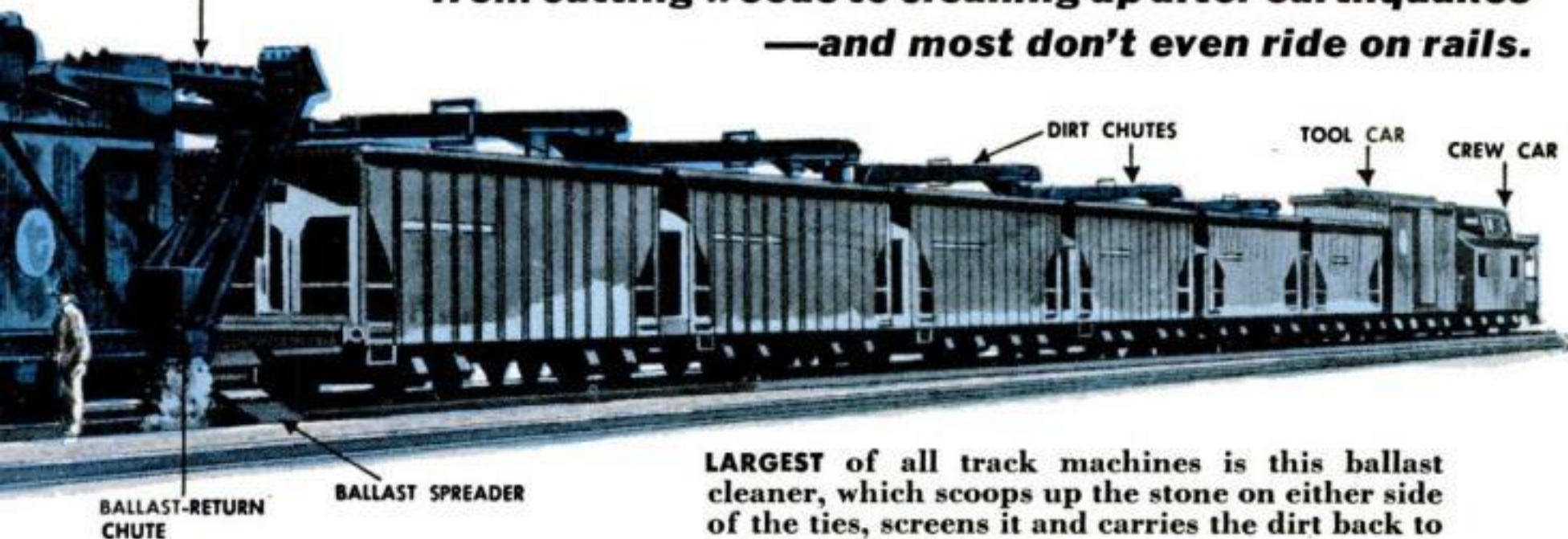
another crack at the coveted "Prize Section" sign.

Today much of that job belongs to big district gangs—18-man, mechanized forces which swarm over a division with the impact of a plague of grasshoppers, mowing down weeds, opening ditches, shooting new ballast, rooting out the old sleepers (31,000,000 ties were replaced



CONVEYOR TO
BALLAST-RETURN CHUTE

**Today fast-moving power tools do everything
from cutting weeds to cleaning up after earthquakes
—and most don't even ride on rails.**



LARGEST of all track machines is this ballast cleaner, which scoops up the stone on either side of the ties, screens it and carries the dirt back to a string of hopper cars.



SEATING TIES in ballast is a cinch for the mechanical tampers used on the Santa Fe. Compressed-air hammers compact the stone to right and left of the rails.



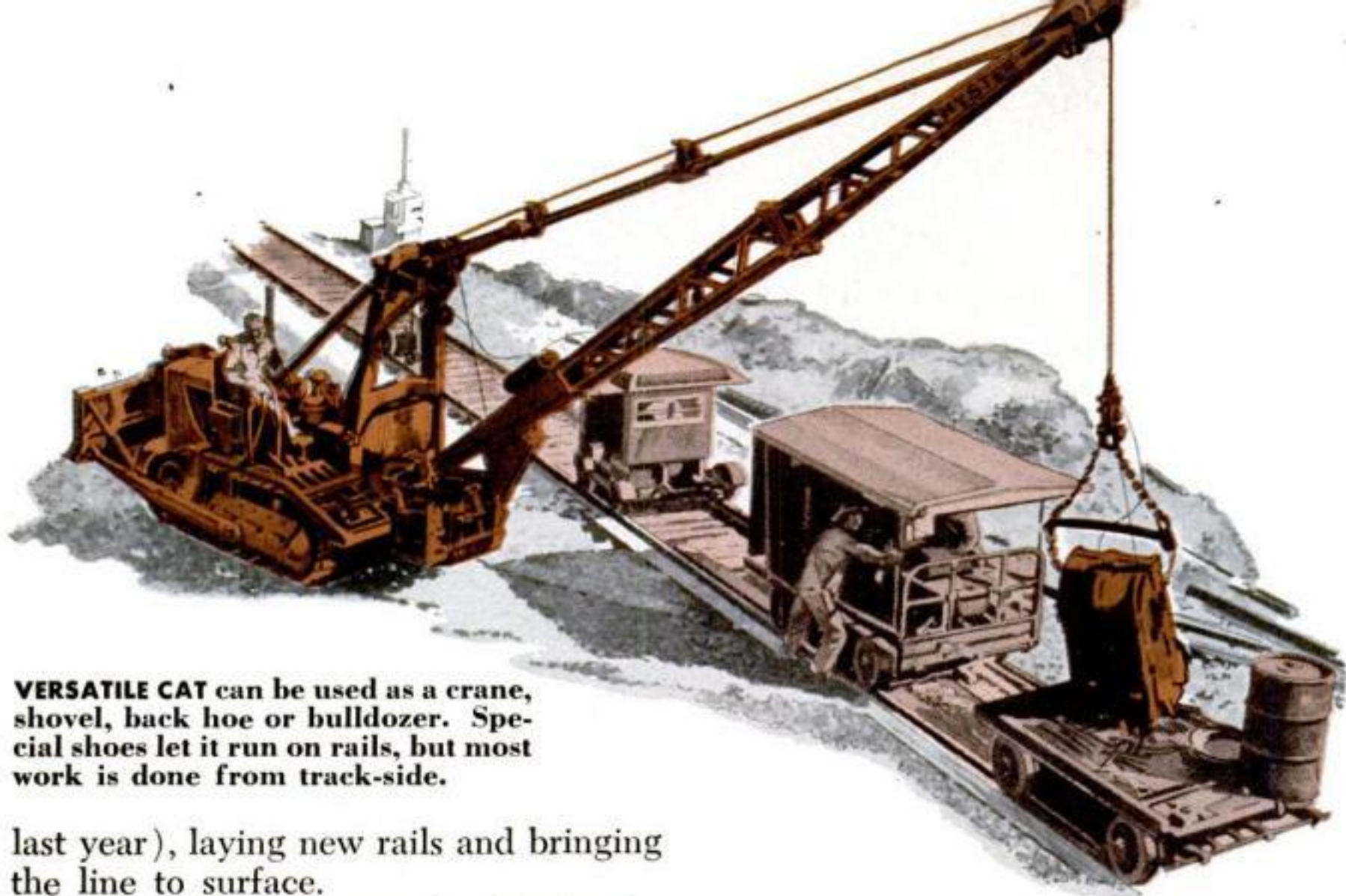
STRONG AS A DOZEN MEN, this gasoline-powered wrench loosens the splice-bar nuts when rails must be removed. It easily breaks bonds that would make the gandy dancers sweat.



WHEN NEW AND HEAVIER RAIL is laid, cribbing between the ties is removed with rotary spades, preventing damage to the mechanical adzers which shave down the ties.



SPINNING ADZER BLADES level a broad base for the rails. After the raw wood has been creosoted, big steel tie plates are applied to spread out the weight of heavy trains.



VERSATILE CAT can be used as a crane, shovel, back hoe or bulldozer. Special shoes let it run on rails, but most work is done from track-side.

last year), laying new rails and bringing the line to surface.

Such a crew, reports the St. Louis-San Francisco Lines, does a better job in far less time. Like other roads which have switched to district maintenance, the Frisco hauls its gangs to and from each job in two-ton trucks, eliminating delays to trains and offering employees a chance to go home after each day's work.

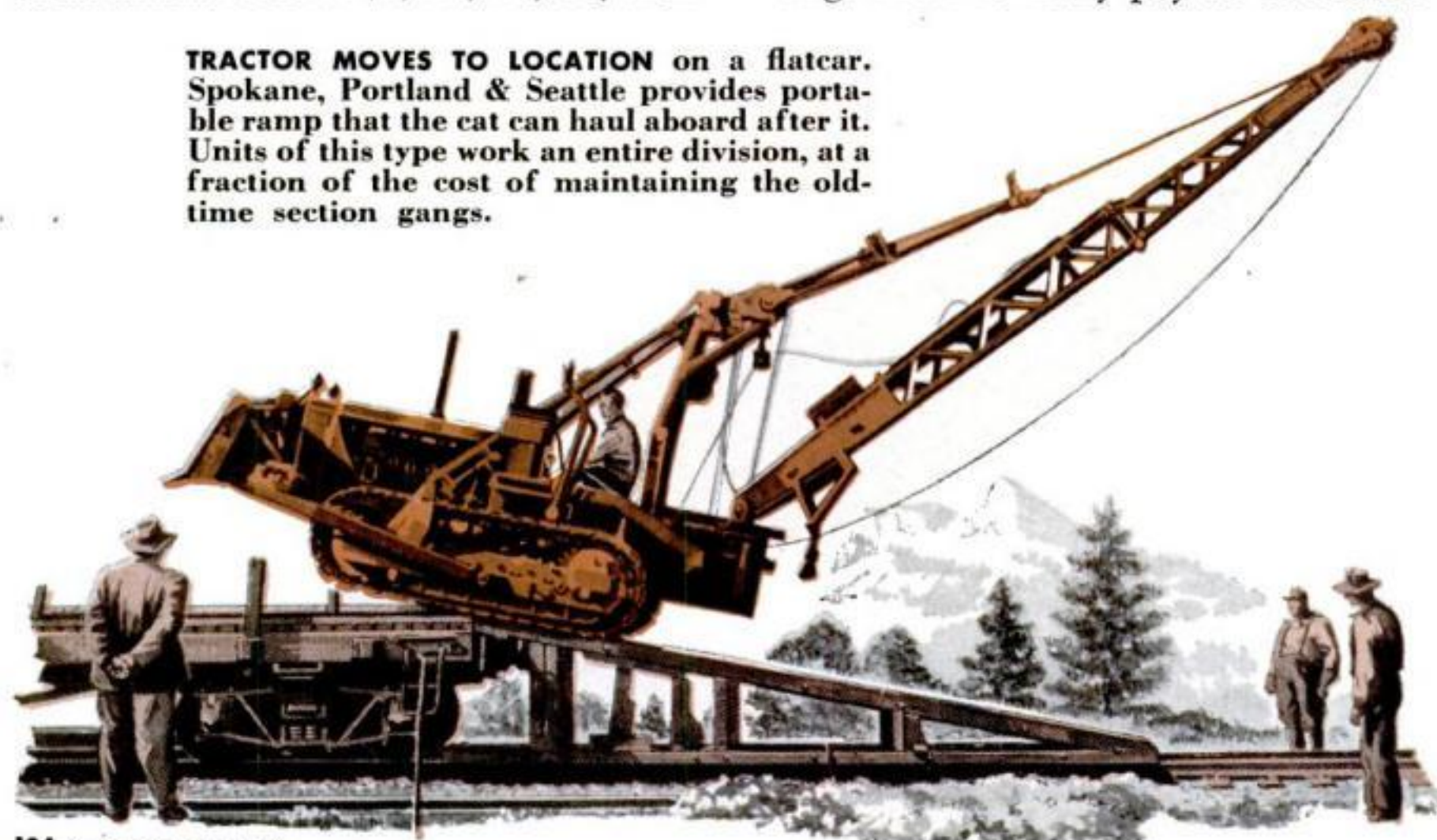
Most of the men are specialists. Like the signalmen, painters, masons, carpenters and steelworkers who help them to keep up 397,000 miles of American track at an annual cost of \$1,500,000,000, their

job calls for training and ability. Less than half of today's 251,000 maintenance workers are pick-and-shovel artists.

Like the gangs which use them, modern track-repair machines are highly specialized. Less and less equipment runs on rails. In 1952, Class 1 railroads spent \$19,500,000 on 9,700 road repair units. These included more than 2,000 self-propelled, off-track machines, ranging from trucks to bulldozers.

Rigs like this really pay off in flexibil-

TRACTOR MOVES TO LOCATION on a flatcar. Spokane, Portland & Seattle provides portable ramp that the cat can haul aboard after it. Units of this type work an entire division, at a fraction of the cost of maintaining the old-time section gangs.





DITCHING and dragline operations call for a two-man crew. Cat also handles rails and ties with ease, replaces bridge timbers, and sets up stockpiles at remote points where regular cranes are not available.

ity. Just 24 hours after last summer's Tehachapi earthquake wrecked 11 miles of Southern Pacific track, shattering eight tunnels and collapsing half a dozen giant fills, the road rushed 175 heavy earth-moving units to the scene. The big cats, scrapers and pneumatic-tired cranes daylighted the shorter tunnels and ran shoo-flys around the long ones in exactly 25 days. This plastic surgery job, involving 1,250,000 cubic yards of dirt and rock, was equal to digging 8,000 fair-size cellars. Officials estimated that it would have taken several months if the work equipment had stayed upon the track.

The machines which still move up and down the rails are a far cry from the hand-pumped gandy wagons of an earlier day. Enclosed section cars that hit 40 miles an hour are now dispatched on regular train orders.

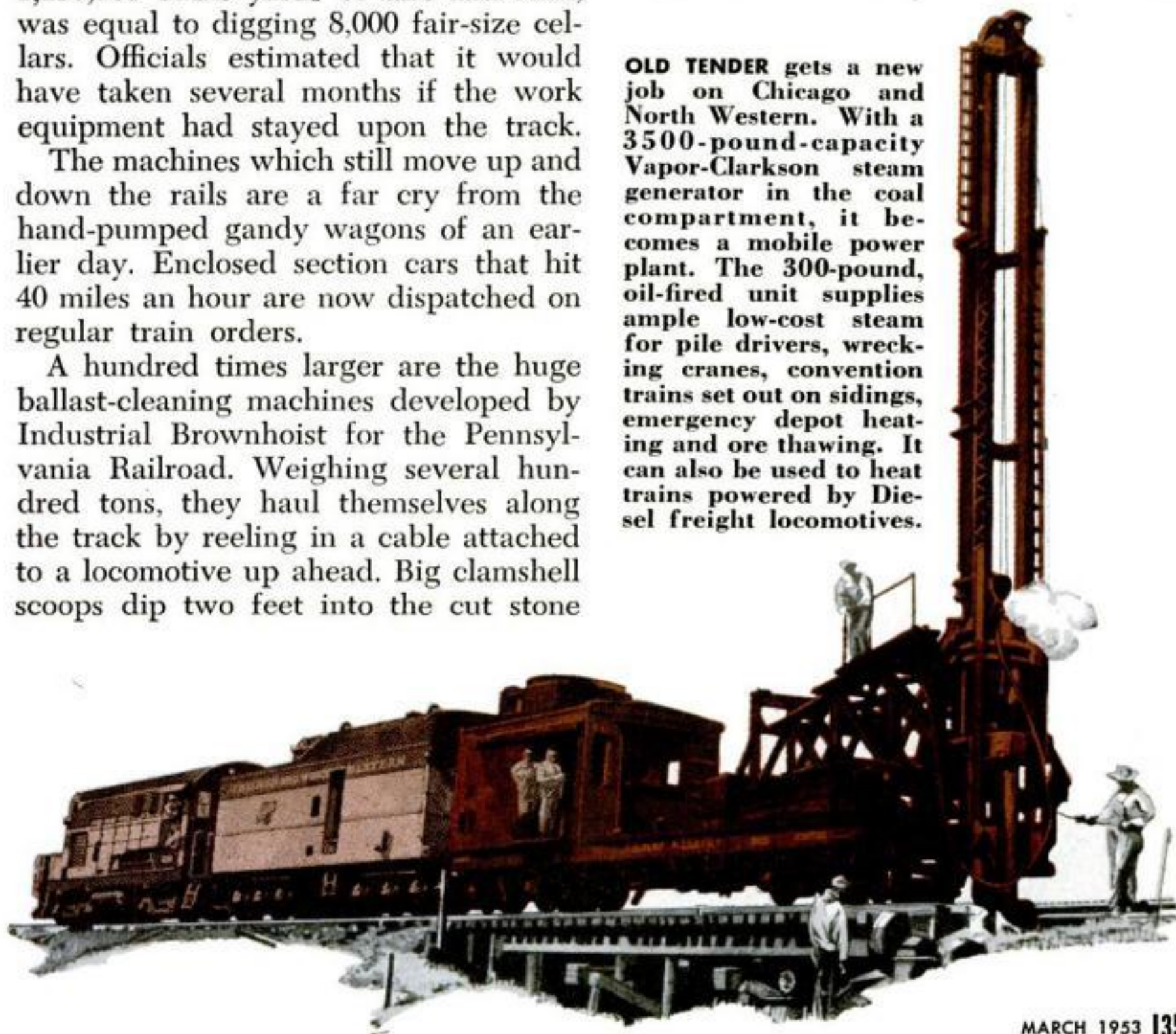
A hundred times larger are the huge ballast-cleaning machines developed by Industrial Brownhoist for the Pennsylvania Railroad. Weighing several hundred tons, they haul themselves along the track by reeling in a cable attached to a locomotive up ahead. Big clamshell scoops dip two feet into the cut stone

and gravel, hoist it onto a series of screens, shake out the dirt and replace the ballast some 50 feet down-track.

Cleaning several miles of roadway a day, such machines may not be as spectacular as a 6,000-horsepower Diesel locomotive. But they are just as important, for no train is faster—or safer—than its track. END



OLD TENDER gets a new job on Chicago and North Western. With a 3500-pound-capacity Vapor-Clarkson steam generator in the coal compartment, it becomes a mobile power plant. The 300-pound, oil-fired unit supplies ample low-cost steam for pile drivers, wrecking cranes, convention trains set out on sidings, emergency depot heating and ore thawing. It can also be used to heat trains powered by Diesel freight locomotives.



"Hypo" Speeds Mountain Mail

THIS big bus-and-trailer takes over the mail where the railroad leaves off. One of a nationwide fleet of similar vehicles, it makes pickups and deliveries to small towns not covered by railway mail service, running between Asheville, N. C., and Blue Ridge, Ga. In the last 12 years the highway postal system of which it is a part has grown from a single run to 75 regular routes in 26 states.

Leaving Asheville daily at 5:10 a.m., the rolling post office heads toward Candler, first stop on its winding route southwestward through the North Carolina mountains. By lunch time it has reached the Blue Ridge terminus, having delivered the mail to 23 towns and stopped twice at cross-roads to transfer mail to a waiting truck for distribution to isolated communities. Then the highway post office turns around and retraces its route, picking up outgoing mail along the way.



MURPHY



RANGER



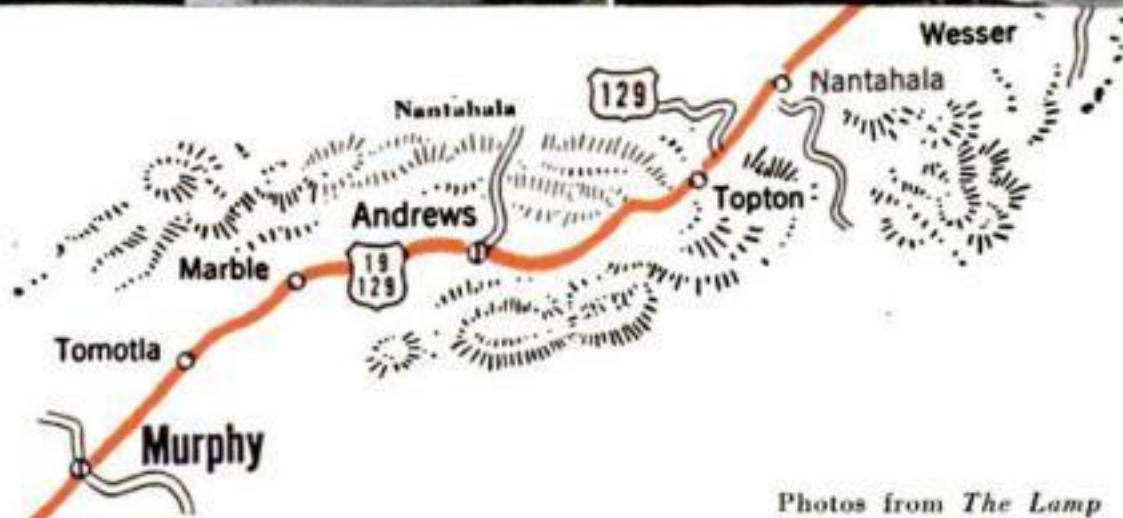
ANDREWS



NANTAHALA



BLUE RIDGE



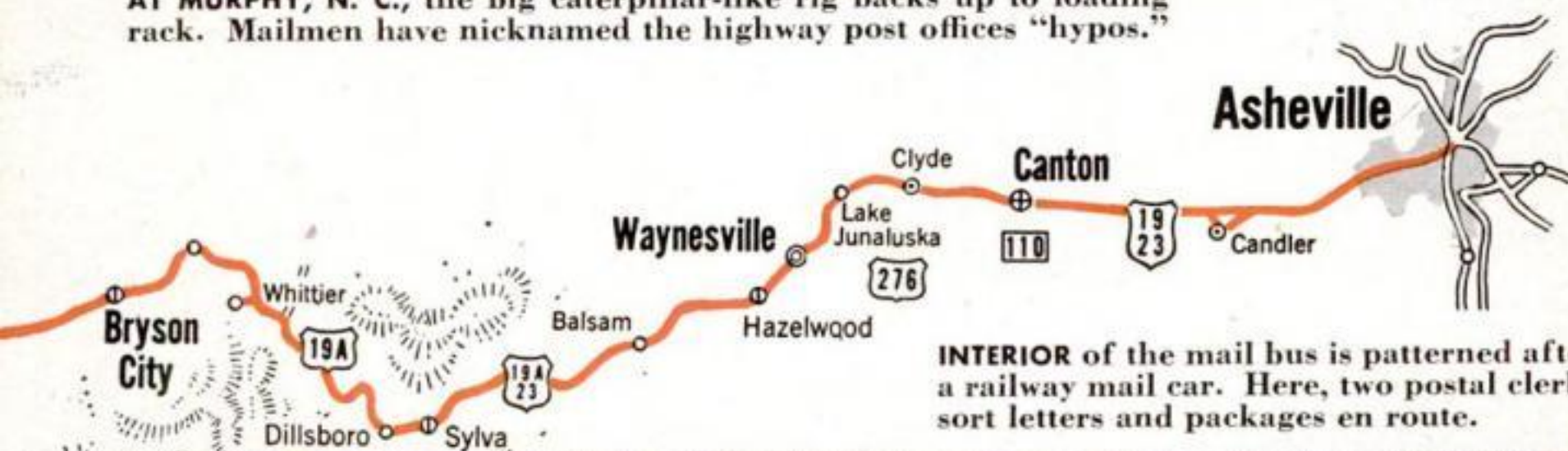
Photos from *The Lamp*



MINERAL BLUFF



AT MURPHY, N. C., the big caterpillar-like rig backs up to loading rack. Mailmen have nicknamed the highway post offices "hypos."



INTERIOR of the mail bus is patterned after a railway mail car. Here, two postal clerks sort letters and packages en route.

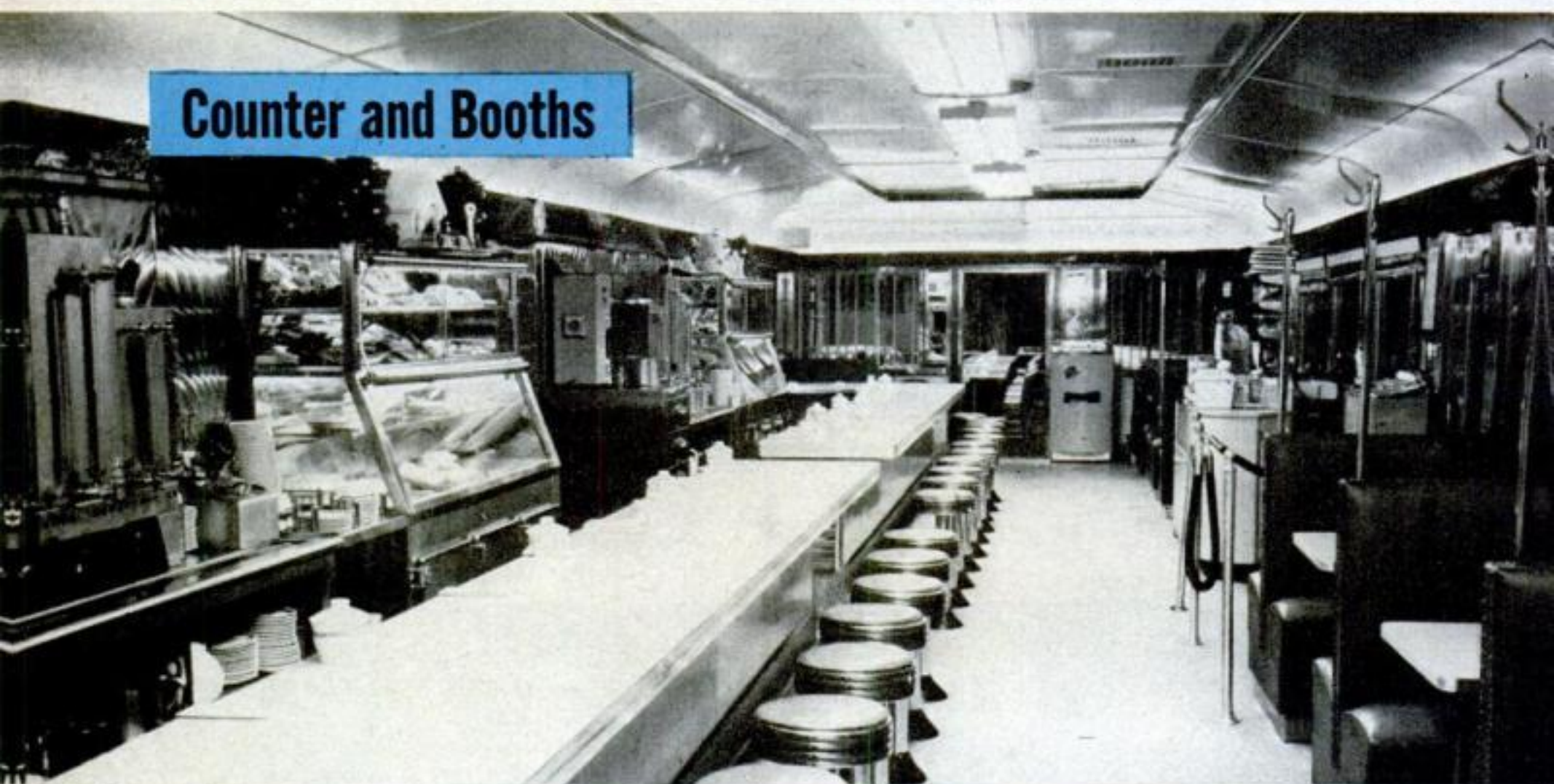


World's Fanciest Diner

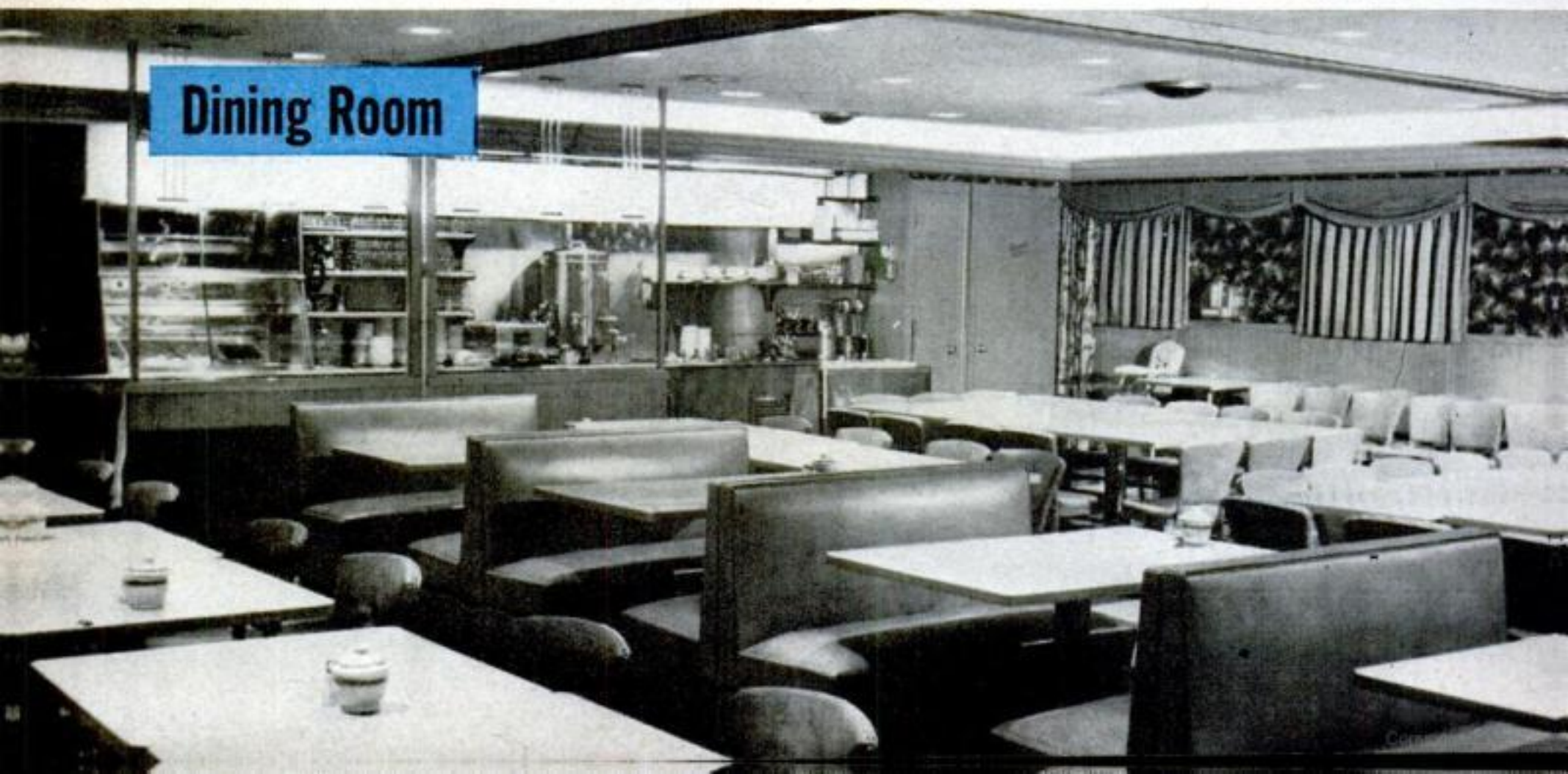
THE TITLEHOLDER, whose claims to its fame are displayed below, stands in Providence, R. I. It was selected by Jerry O'Mahony, Inc., world's biggest builder of diners.



Counter and Booths



Dining Room



The Old Dog Wagon



Puts on the Dog

It started out as a humble imitator of the swanky dining car, but now its menus and marvels have made it into a roadside Ritz.

By Gardner B. Soule

THE eating places with the most elaborate menus in the world, the fastest service and the most customers are not the restaurants of Paris but instead are mass-produced in U. S. plants.

The roadside diner—the long, narrow, silver-colored affair that looks like a railroad dining car—has become the fanciest, speediest and busiest of eating establishments.

The story begins more than 60 years ago, in 1892, the year Charles Duryea successfully operated the first gasoline-driven horseless carriage in America. In that year a man named Charles Palmer

started using horse-drawn wagons to carry hot frankfurters and beans to workmen in Worcester, Mass., factories.

What grew out of Duryea's invention is well known. What came from Palmer's idea is not. But as Americans took to the highways, the diner took out after the cars, and by 1953 the diner was as different from Palmer's dog-and-bean wagon as a 1953 Cadillac is from Duryea's gasoline buggy:

- Instead of Palmer's menu of two choices, the 1953 diner has a menu that may run to six pages and include lobster Cantonese, crêpes Suzette and champagne.
- Instead of taking the time that the

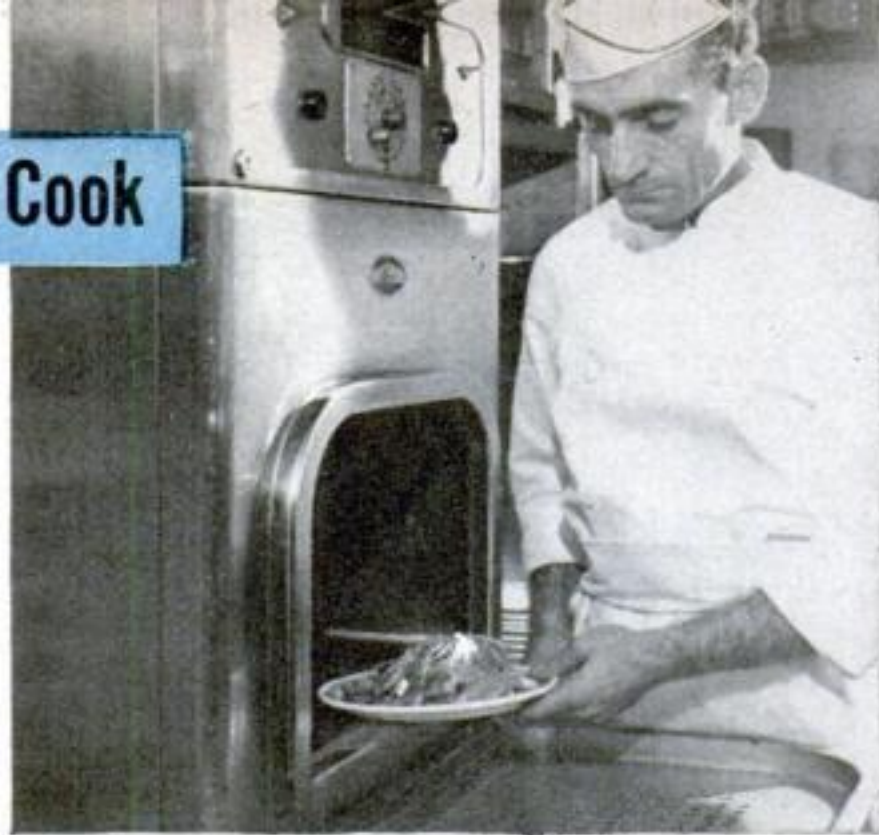
Banquet Hall



Science Aids the Short-Order Cook



FROZEN ASSETS of the lavish diner on the previous pages are the meats and poultry kept on hand in this spacious walk-in refrigerator.



QUICK, THOROUGH COOKING for customers who normally spend only 20 minutes eating is guaranteed in the speedy radar range.



ELECTRIC MEAT CUTTERS slice through a side of beef with ease and save valuable time in preparing food for a fast-moving crowd.

Greasy Spoon used to require to prepare a meal, the 1953 diner is engineered to get the average customer in, fed and out in 20 minutes.

- Instead of peddling food to workmen only, the 1953 diner caters to men, women and children, even to clubs. It caters to truck drivers still (although the tip-off to a diner's popularity is no longer rows of Fruehaufs but a parking lot full of Fords, Buicks—and up). It caters, above all, to families.

- Instead of functioning at night only (this got Charles Palmer suspected as the operator of a sinister trade), the modern diner is open 24 hours a day. "We don't have a key," says Martin Rich, who owns a diner near Port Chester, N. Y., on U. S. 1. "I forgot where I put it."

- Instead of being an establishment of

doubtful hygiene, the 1953 diner has steel counters, leather or plastic seat covers, terrazzo floors, chrome decorations and a plastic ceiling. All—including the ceiling—can be wiped clean instantly with a damp cloth.

- Instead of seating six or eight persons at a counter only, as Palmer's wagons did, the modern diner has tables, booths *and* counters, and seats as many as 137.

- Instead of being carpenter-built wooden wagons, today's diners are stainless-steel, chromium-plated, air-conditioned, fully insulated, fluorescent-lighted, deluxe eating establishments with as many accessories as a 1953 automobile. They are constructed on assembly lines with power tools, largely from prefabricated parts.

The man who changed the wooden

One Diner's Rise from Rags to Riches

FRITZ HAS FLOURISHED in the 20 years since he fried eggs in the crude Trenton, N. J., diner in the top photo at right. His location hasn't shifted far, but his business has obviously come a long way.

lunch wagon into a streamlined steel car was a New Yorker named Jerry O'Mahony. He ran a diner at 7th Avenue and 34th Street in 1913. Did well, too. Made \$1,380 that year. But customers asked where he got his wooden diner. So he had his carpenter build some, and sold them for \$300 each. Then he kept on building diners.

Today Jerry O'Mahony, Inc. of Elizabeth, N. J., is the biggest of about a dozen companies making diners. Others include Silk City Diner, Inc., and Paramount Diner Corp. at Paterson, N. J. and Kullman Dining Car Co. at Harrison, N. J. New Jersey is the state that makes the diners.

Prices Have Gone Up

O'Mahony's prices have gone up. "Our diners," the company boasts, "are the most expensive you can buy." Selling prices start at \$36,000 (34 seats) and go up to \$110,000 (those 137-seaters).

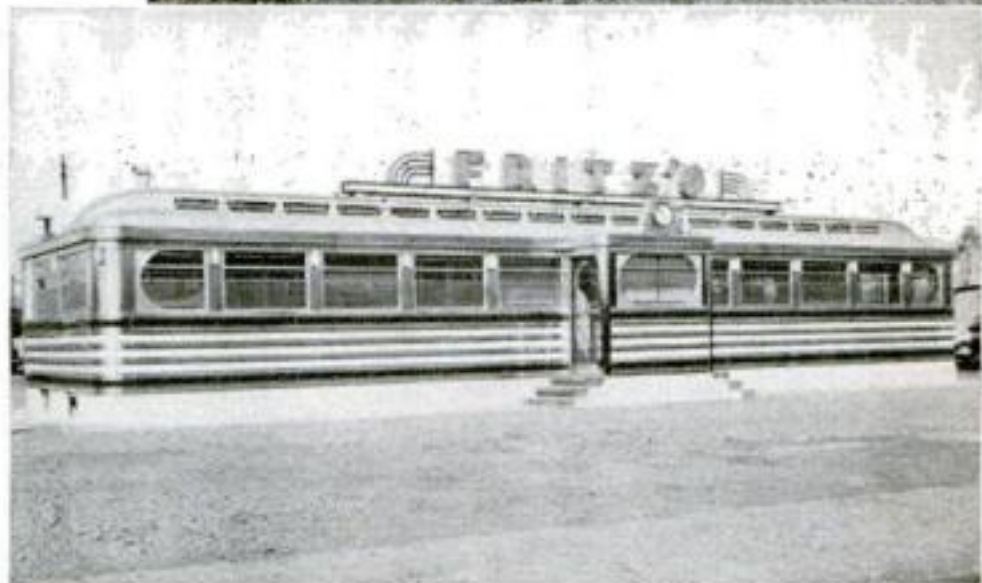
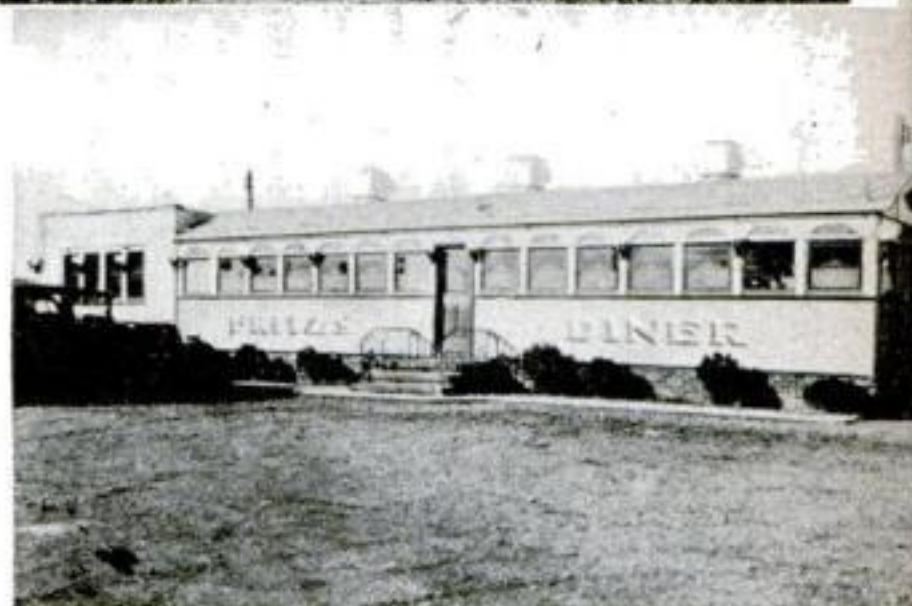
An O'Mahony diner is delivered to its owner complete: with sinks, stoves, refrigerators, walk-in freezers (a diner buys a side of beef at once), plumbing, air conditioning, heating, automatic dishwashers, steam tables, phone booths, counters, stools, pots, pans, waitresses' uniforms, china, napkins, silverware, toothpicks, rest rooms, fudge pumps, food warmers, and juke-box outlets offering a choice of up to 100 records.

O'Mahony will include television sets if you insist, but doesn't like to. TV keeps the customers staying longer than that 20 minutes without increasing the money they spend.

Some O'Mahony diners come with a private mahogany office for the owner, complete with built-in shower.

The prospective owner usually pays

[Continued on page 248]



New Tools for Big Eaters

1. Mechanical shucker makes oysters on the half-shell no chore at all. With the one at right, you set the oyster in place between two jaws and push down easily on the lever. The oyster is not pried open, but pops apart as a sliding, twisting action severs the muscle from the shell.



4. Fish board makes cleaning, scaling and steaking fish easier. A steel clamp on the 18-inch board grips a fish by the tail. Both your hands are free to do a job on the slippery catch and they take less of a beating from the scales since the fish never skids around while you work.

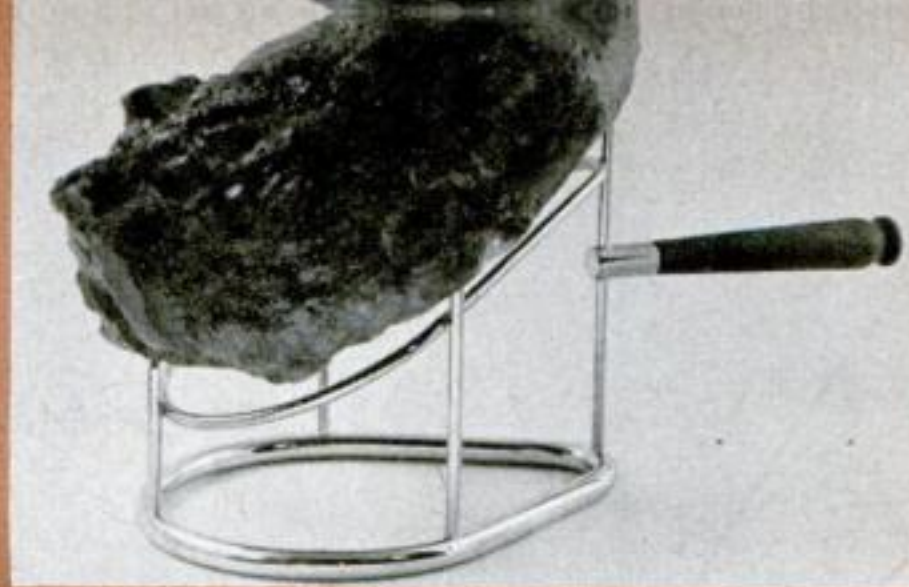


5. Steel tongs, like those the iceman used to carry, let a cook lift a heavy bird with ease. The transfer from pan to platter can be made with no assist from the man of the house. Called the Lift-A-Roast, the tool is just right for reaching into a deep electric roaster.

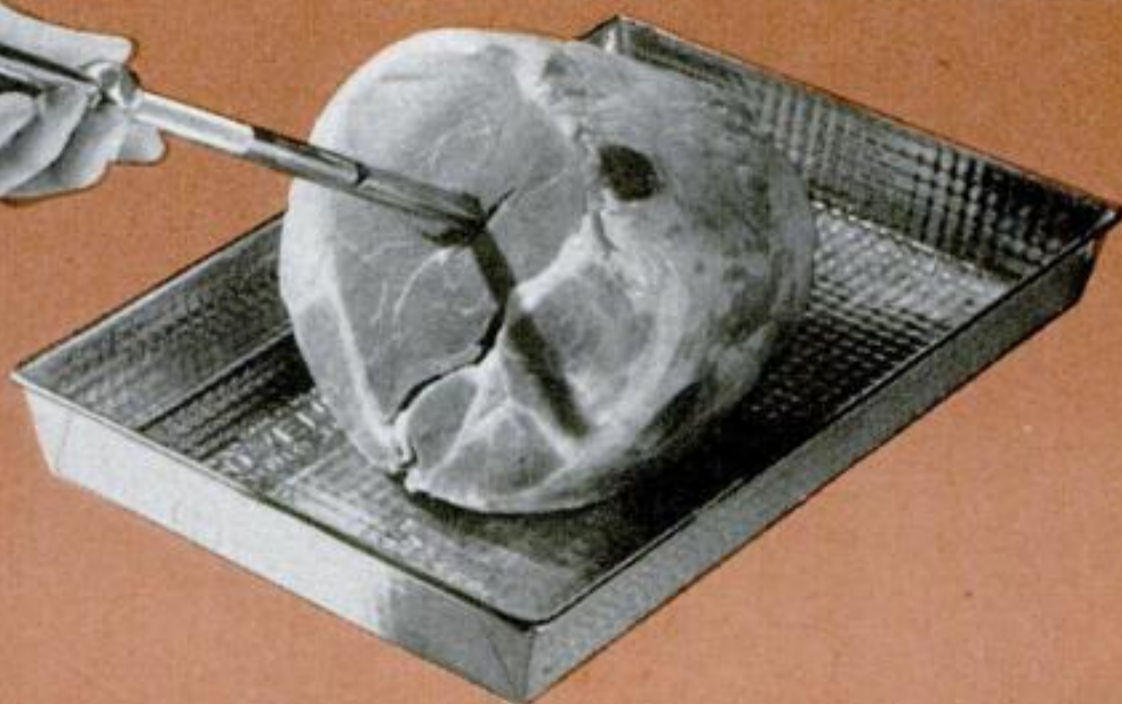


6. Most used tool of professional meat chefs is the thermometer. Here's one with an easy-to-read temperature dial that brings roast beef to your table the exact shade of pink you hunger for. A chart on the porcelain-enamel face gives temperatures for cooking meat as you like it.

2. Meat rack spears a roast on four upright prongs to hold it steady for the carver. The joint can't slide or wobble, is always in perfect position for slicing.



3. Injector stuffs meats with bits of pineapple, mushrooms, onion, spices; permeates roasts with wine, honey or meat juices. The Flavor-Maker is also a larding needle and stitching needle.

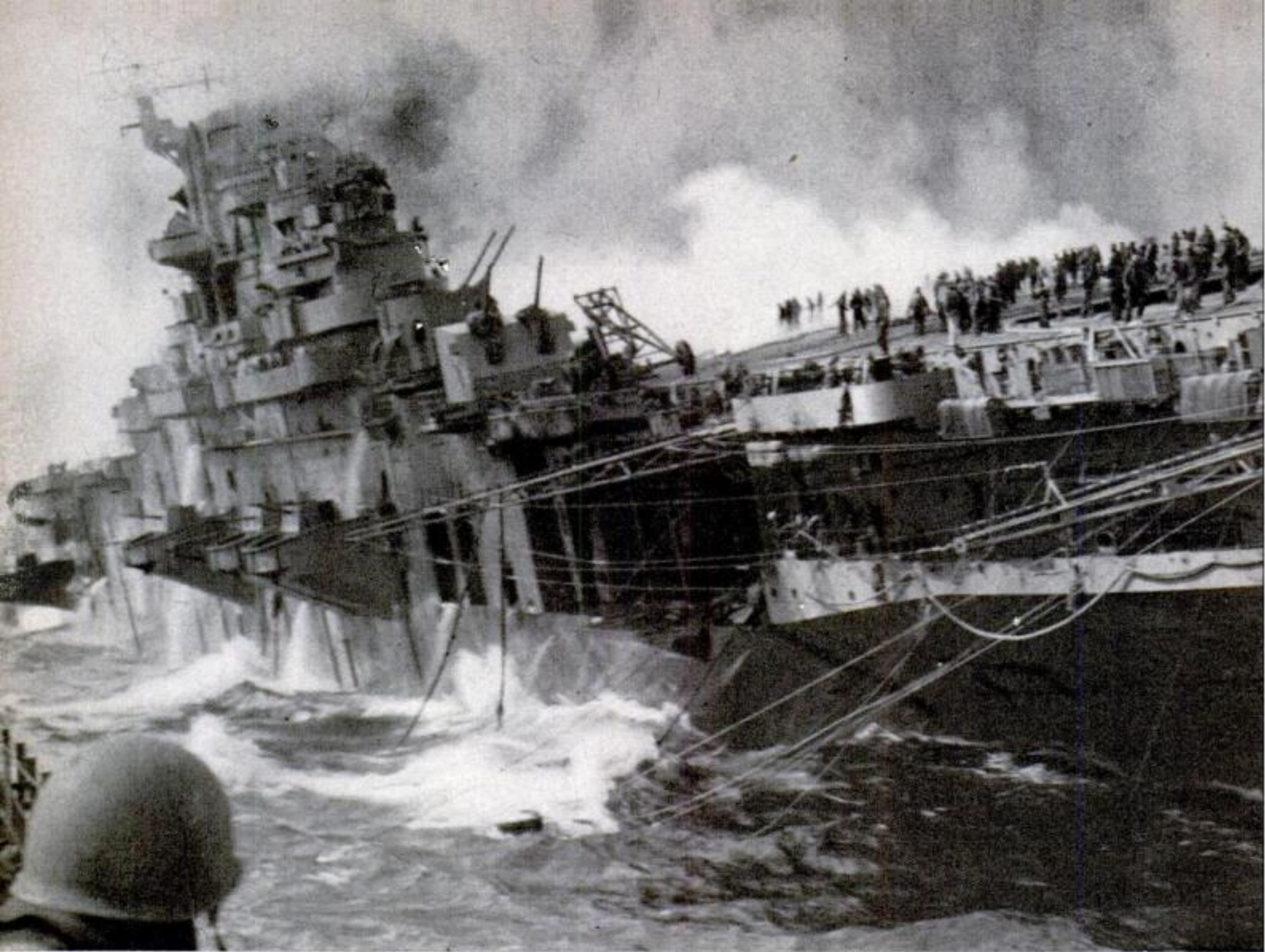


7. Tenderizer makes Swiss steak seem more like porterhouse. Rolled over cheaper cuts of meat, it breaks up tough fibers. Twenty columns of sharp teeth—set five abreast—do the job.



8. Pattie Paddle will stack up the hamburgers fast to take care of a crowd at the dining table or the outdoor barbecue. Once filled, the plastic shaper is upended and the pivoted bottom is slid to one side so that the burger plops into the pan or onto the griddle without sticking. It holds two ounces when packed level and will turn out fish patties or potato cakes for non-burger fans.

Further information on these products can be obtained from: 1. Shuck 'Em, Inc., 152 Beekman St., NYC; 2. Maxwell-Phillip Co., 225 Fifth Ave., NYC; 3. Bard's Products, 81 Salem Lane, Evanston, Ill.; 4. Central Mfg. Co., 1824 4th Ave. So., Minneapolis; 5. Dudley Kebow, Inc., 5941 Avalon Blvd., Los Angeles; 6. Cooper Thermometer Co., Pequabuck, Conn.; 7. Miles Kimball Co., 44 Bond St., Oshkosh, Wis.; 8. Specialty Mfg. Co., Box 871, Madison Sq. Sta., Grand Rapids, Mich.



Navy Soup Guns

In crash fires seconds save lives. But the new Squirt trucks can spray foam fast enough to smother flames in time.

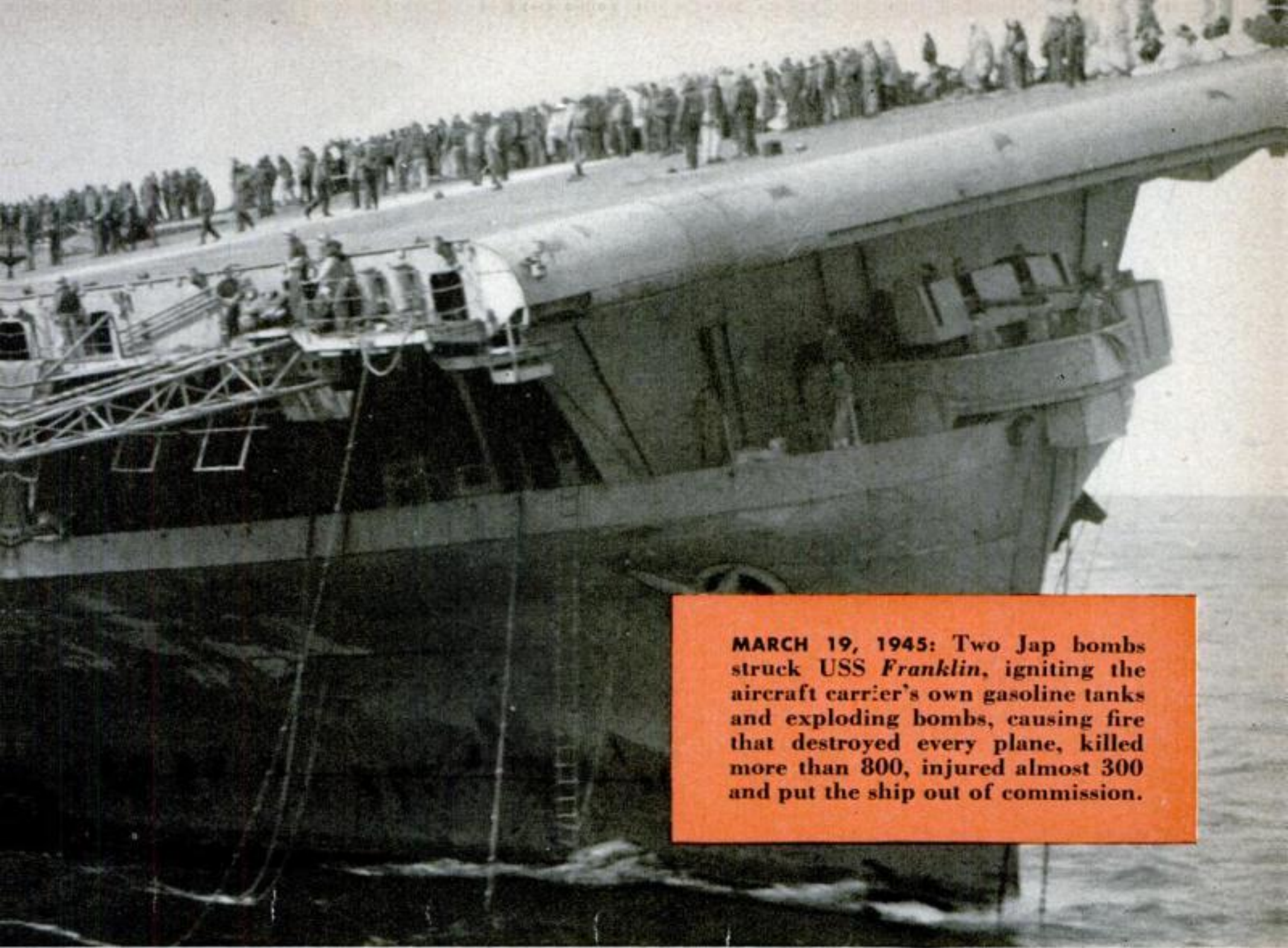
By Herbert O. Johansen

EARLY on the morning of March 19, 1945, a lone Jap dive bomber scored two hits on the USS *Franklin*, turning the big aircraft carrier into an inferno of flaming gasoline. Before the blaze was under control, hours later, more than 800 men had been killed and every plane on the ship had been destroyed. But four jeeps that had been used to haul aircraft on the deck came through unscathed.

If those jeeps had been Little Squirts, the newest weapon for fighting fire

aboard aircraft carriers, the *Franklin* disaster would have been less devastating, say Navy damage-control experts. Had the new type of foam developed for use in this jeep fire wagon been available in World War II, many ships lost or disabled by fire could have continued to fight.

In demonstrating its baby recently, the Navy pointed out that the Little Squirt could protect small civil airports that can't afford \$30,000-and-up fire trucks. A civilian version, the Navy estimates, should cost about \$5,000—and an



MARCH 19, 1945: Two Jap bombs struck USS *Franklin*, igniting the aircraft carrier's own gasoline tanks and exploding bombs, causing fire that destroyed every plane, killed more than 800, injured almost 300 and put the ship out of commission.

Fight Plane Fires

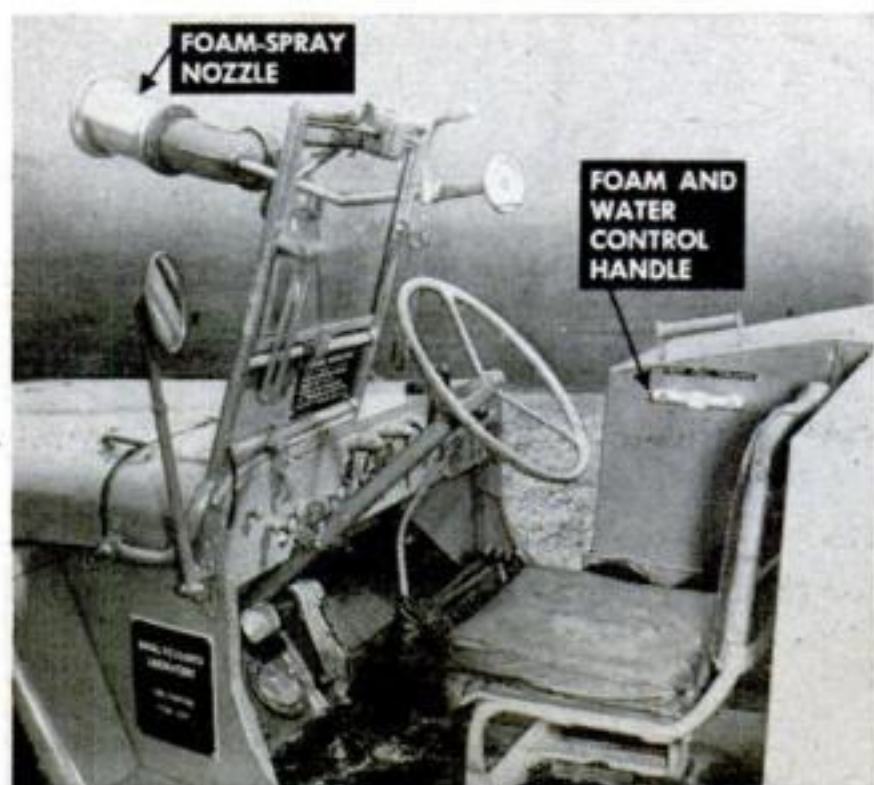
LITTLE SQUIRT is the Navy's new jeep fire-fighting wagon designed for use aboard large

aircraft carriers. Spray pattern from the hand-operated, pivoted nozzle can be varied.

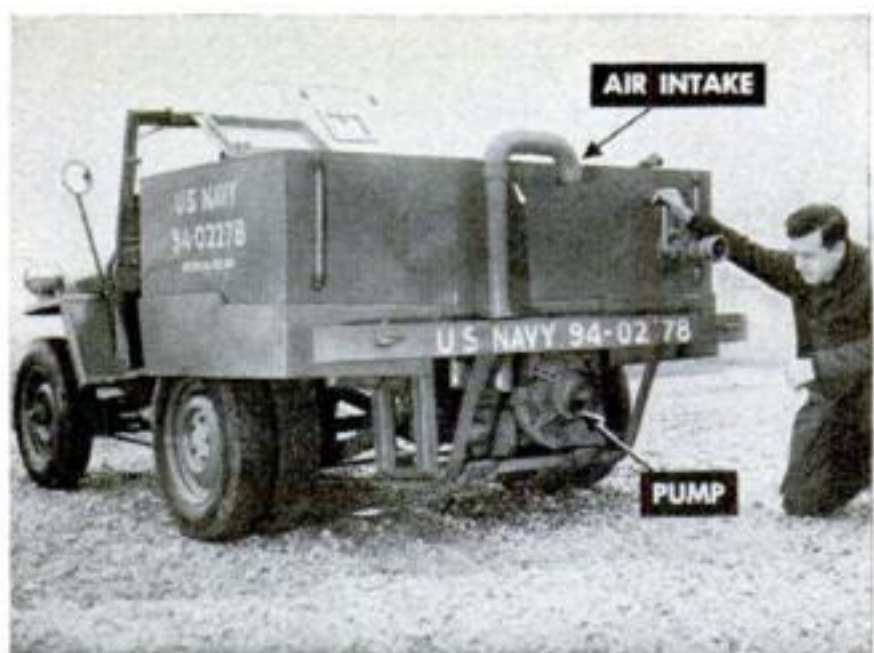




MICRO-BUBBLED FOAM sticking to boots of fireman shows how its fire-smothering blanket adheres even to vertical surfaces instead of running off as does old-type foam.



TO SHOOT STREAM of foam spray, driver puts jeep in neutral and engages power take-off. He then pulls foam-water handle and accelerates the engine to maximum speed.



BODY OF LITTLE SQUIRT is a tank with two compartments, one for 20 gallons of bean soup and another holding 230 gallons of water. These are fed by gravity into a pump.

auto manufacturer is planning to produce one.

The Little Squirt, and its Big Squirt brother, designed to fight big-bomber crash fires on land, were developed by chemists at the Naval Research Laboratory, Washington, D. C. They consider fire as a chemical triangle. Its three sides are fuel, heat and oxygen. Remove any one and you have the fire licked.

Knocking Out Oxygen Kills Fire

In crash fires, removing the fuel—mostly gasoline—is not practical. The same is true of heat. Water, considered the best cooling agent, cannot cool gasoline fires fast enough to permit occupants to be rescued. Also, gasoline, being lighter than water, may float and simply spread the fire. And high-pressure water streams have been known to cause magnesium in a plane to explode.

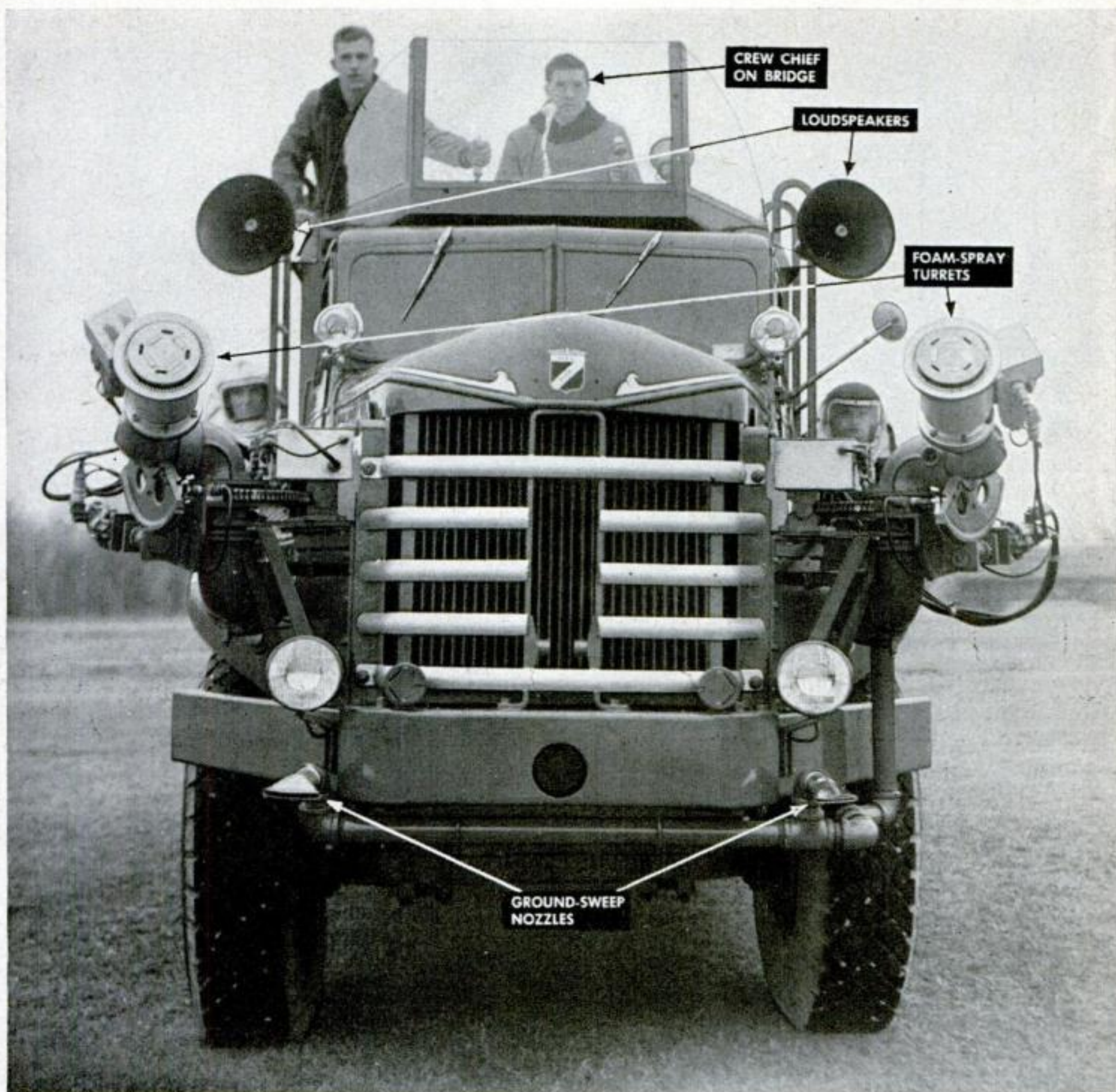
That leaves oxygen as the element to be tackled. It's done by blanketing a fire with chemicals. Carbon dioxide does a good job on small fires, especially in confined places such as engine nacelles. It's the stuff in those horn extinguishers you see near the engines while a plane's engines are being warmed up. But carbon dioxide blows away too quickly to have much effect when a whole airplane is enveloped in flames—and it is not usually available in large enough quantities.

Foam Blankets Flames

So the chemists have developed a blanketing foam. It not only removes the oxygen side of the fire triangle but prevents further vaporization of the gasoline. And it's the vapor that feeds the flames.

The secret of the Squirts is the new and better "bean soup" that they shoot from their "guns." The ingredients are the same—a foam concentrate of protein solutions (which looks like black-bean soup, has a foul smell and is sometimes made from soy beans), water and air.

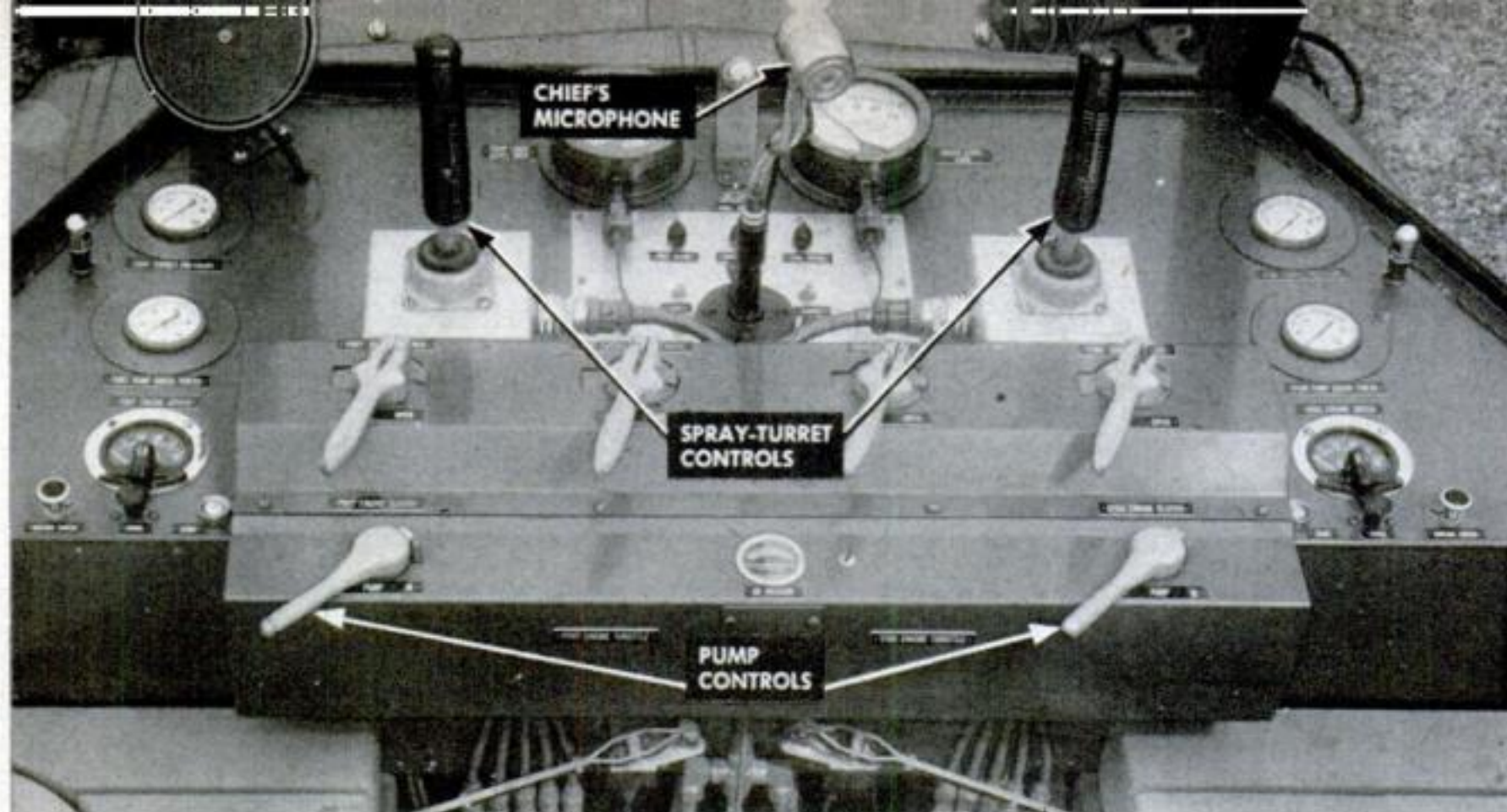
It is how the ingredients get together that makes the difference—that and the proportions. Naval Research Lab chemists found that ordinary foam, effective on certain types of fires, was too fluid for



BIG SQUIRT has foam-spraying capacity to blanket crash fires of large bombers on land. Tanks hold 80 gallons of foam concentrate

and 1,250 gallons of water. The twin-turret sprays smothered a simulated airplane-crash fire (below) in less than two minutes.





ALL FIRE-FIGHTING OPERATIONS are controlled from this "bridge" on top of the Big Squirt.

Valves and clutches are air-operated; the spray-gun patterns are electrically controlled.

aircraft blazes. It just wouldn't stick where you wanted it. This foam usually is made by pumping the soup and water to a nozzle and mixing in air there.

The Squirts go about it differently. Soup and water flow by gravity from tanks into a pump which at the same time gulps air. Inside the pump, plastic paddles churn the ingredients to make a high-pressure, mechanical foam—the Navy calls it micro-bubbled—that is stiff and sticks where you shoot it, even on vertical surfaces. And it comes out in quantities two to three times greater than can be produced by similar equipment.

First a Rescue Path

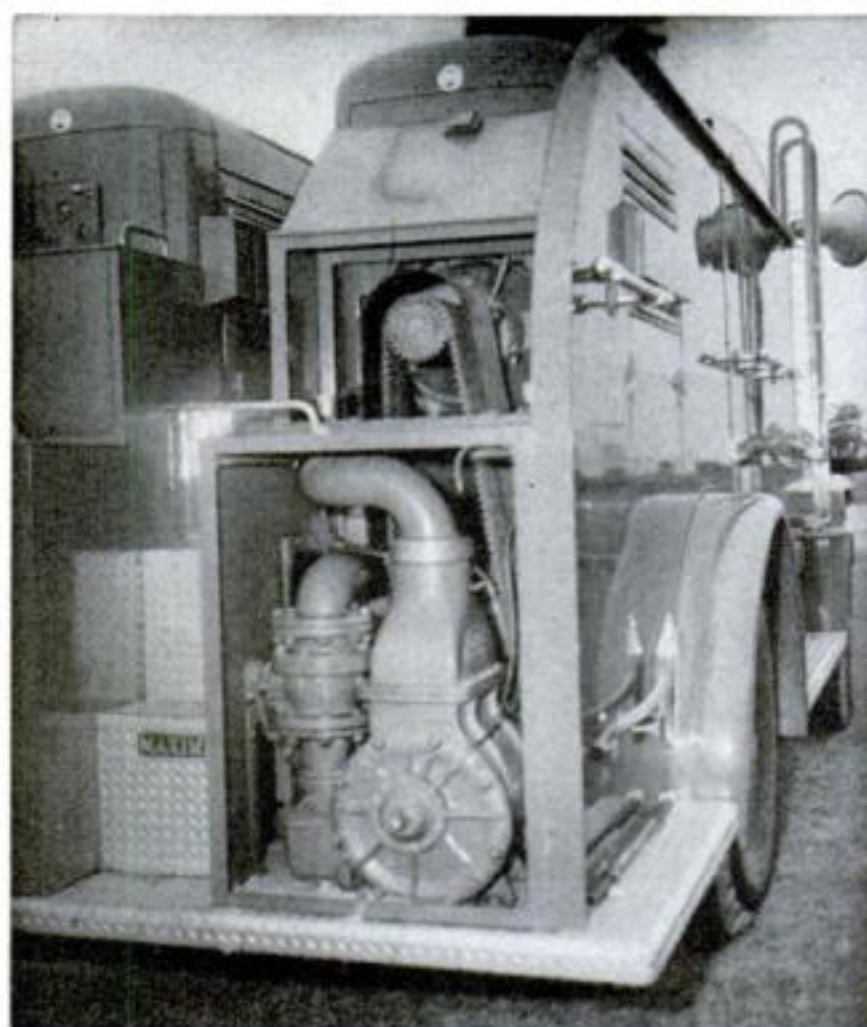
The first thing the Squirts do when they dash into a blaze is to lay down a rescue path. There may be a wall of fire on either side, but the foam piles up and creates a safe exit way in a hurry. And in no other type of fire do seconds mean so much in saving lives.

In a simulated crash-fire rescue, with 150 gallons of gasoline blazing over 600 square feet, the Little Squirt laid down a rescue path within 24 seconds after its single nozzle began spreading a foam blanket. That was delivering about 1,300 gallons of foam a minute. The Big Squirt can throw more than 7,000 gallons a minute.

The Little Squirt is a standard jeep

with dual rear wheels and a strengthened chassis. Power for the pump is taken off its 60-horsepower engine. The crew consists of the driver and a nozzleman. The latter can spray 1,300 gallons of foam a minute for more than two minutes. He can vary the spray pattern to reach a burning plane from 90 feet away or to cover a trapped pilot with a 30-foot-diam-

[\[Continued on page 258\]](#)



ONE OF TWIN PUMPS that churn the bean soup, water and air into new type of mechanical pressure foam. Each pump is chain-driven by a 140-horsepower engine.

New Ideas

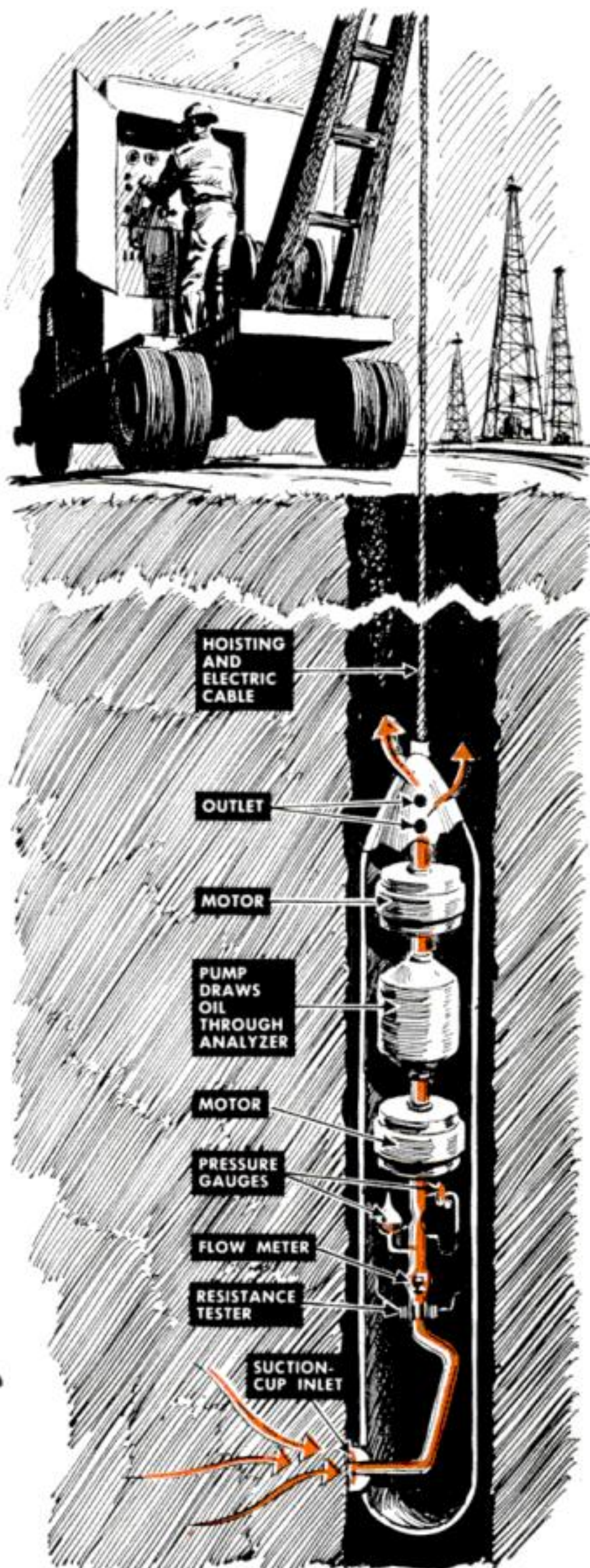
FROM THE INVENTORS



1 Corncobs to Avert Skids. Inexpensive winter-tire treads containing ground corn-cobs would outwear types that use sawdust, rock salt or steel wool, the inventor claims. The corncob particles (white dots in sectional view) would grip ice as the tread wears, both by projecting and by falling out and leaving suction cavities.



2 Spike to Flavor Meat. Filled with a seasoning liquid, this cooking aid would literally spike roasts with zestful aroma and flavor. It is intended to be stuck into the food. Its reservoir is so shaped that the fluid is vaporized by the oven heat before it flows down the bore and escapes through the vents into the meat.

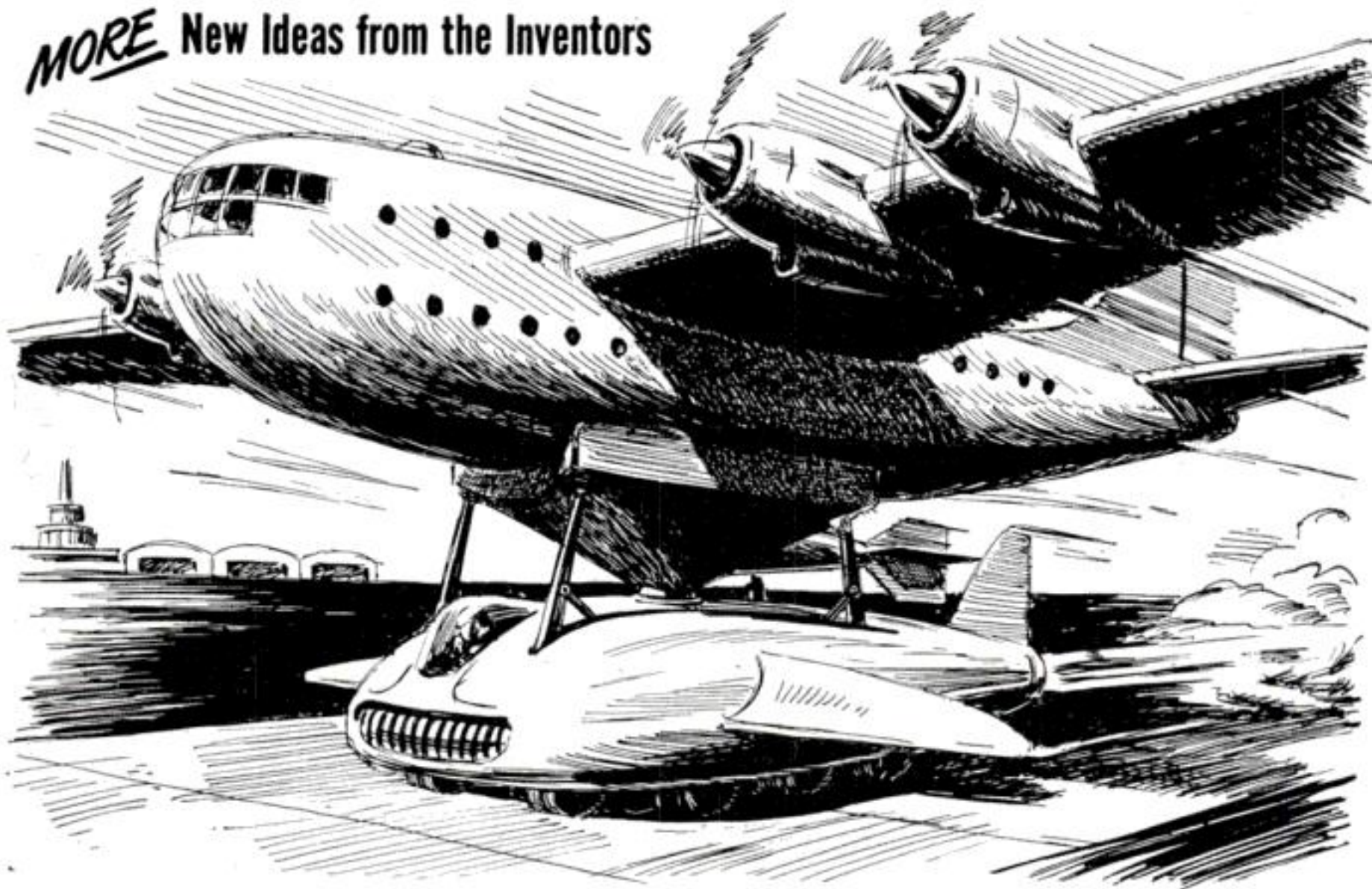


3 Robot to Probe for Oil. Lowered into an oil formation, an "automatic chemist" would analyze fluid seeping from rock at any level, thus revealing whether it was salt water, fresh water, oil or gas. Electrodes test the fluid's conductivity; pressure gauges, its rate of flow and, hence, viscosity. Electric dials at the surface tell the findings.

Please turn the page for more new ideas.

MARCH 1953 149

MORE New Ideas from the Inventors



4 Car to Launch Big Planes. Powered by jets or rockets, this streamline car, proposed by a French inventor, would boost heavy-laden airliners or bombers aloft. At

flying speed, braces are retracted, plane and cradle swing into the wind, and the plane uncouples and soars away. Lest the car take off, too, it would have upside-down wings.

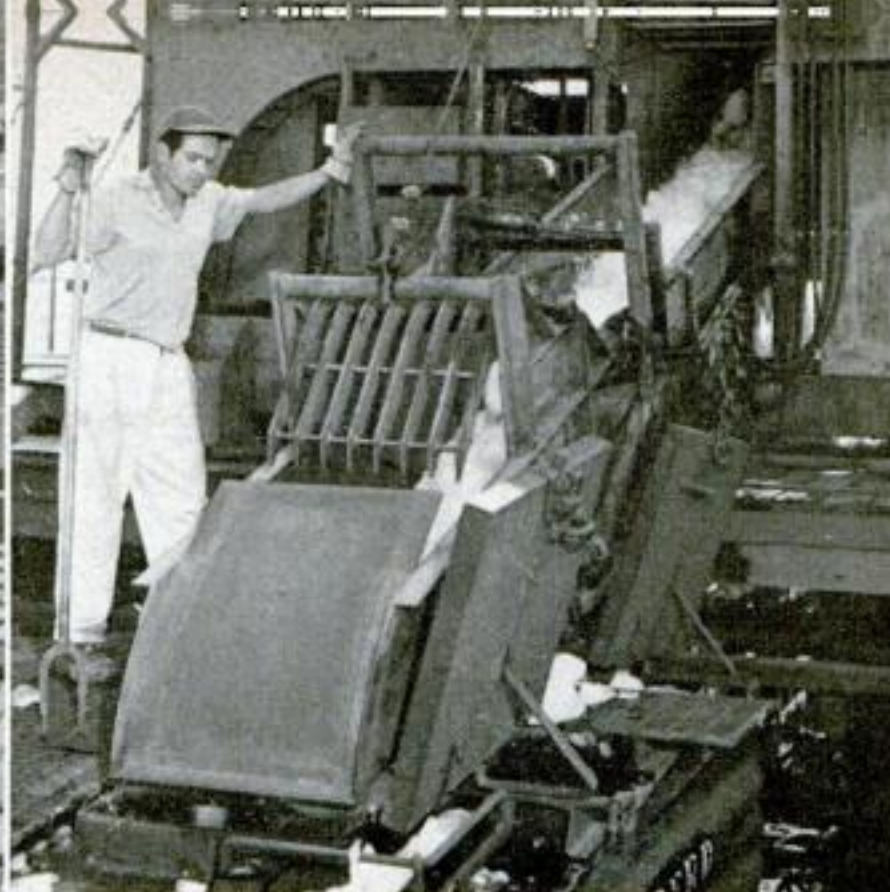


5 Net to Return Toys. Does Baby drop his toys over the edge of his play pen—and then howl because they're gone? Fitted to the outside of the pen, this slanting net would let harassed parents relax from fetching and carrying. Anything dropped into it comes right back to Baby.



6 Boat to Cruise on Land or Water. The outboard motor of this amphibious craft would turn a rear wheel equipped with a pneumatic tire for land traction and paddles for the water. Two front wheels would be lowered for road use, raised above the waterline when the craft is afloat.

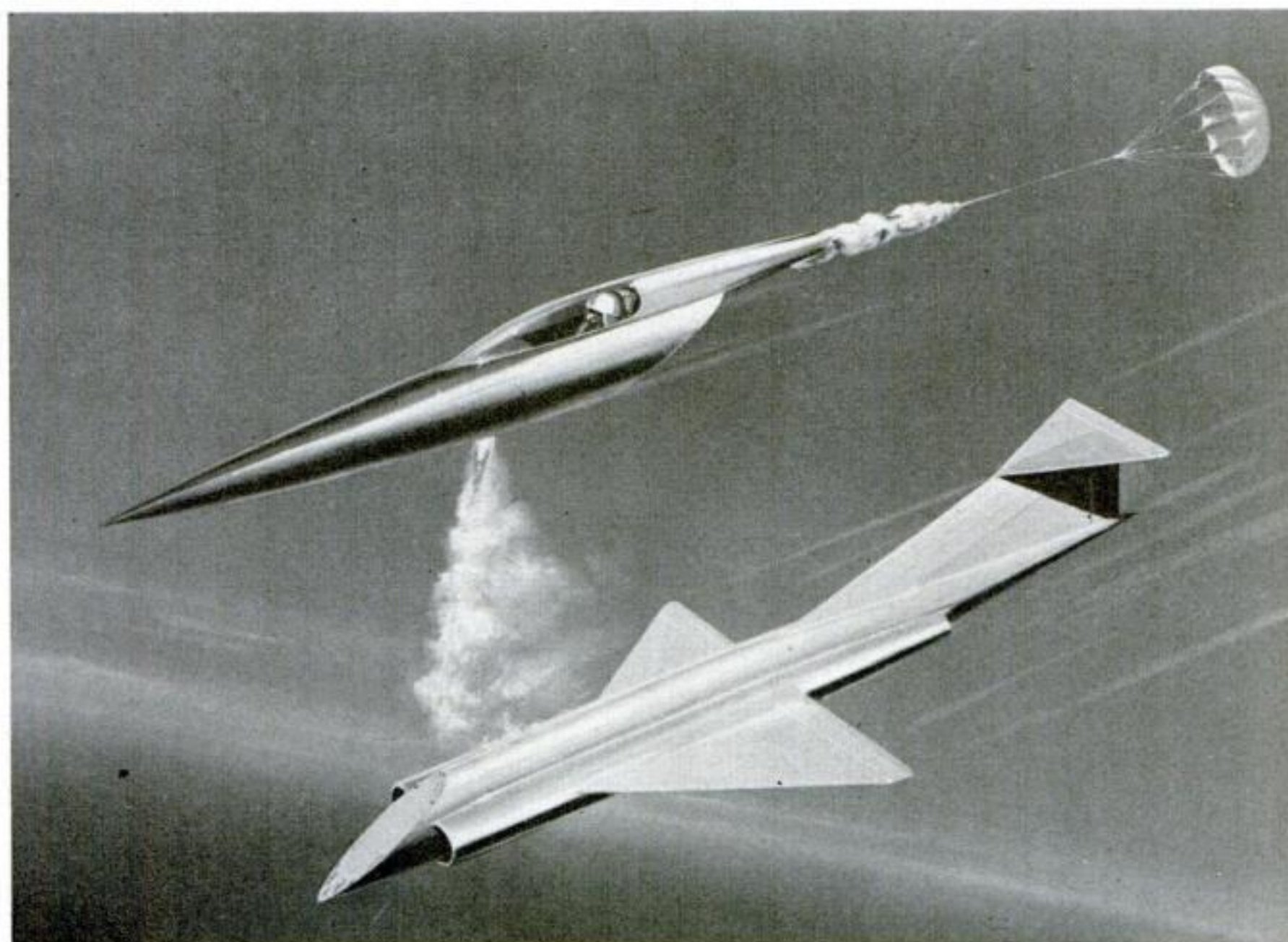
U. S. patents on these inventions have been granted to: 1. Charles J. Pavlik, Denver; 2. Eugene T. Pedranti and Isabel M. Pedranti, Petaluma, Calif.; 3. Joseph H. Lane, Kansas City, Mo.; 4. Jacques Jean-Marie Jules Gerin, Boulogne sur Seine, France; 5. Norman C. Le Roy, Miami; 6. Osmario Rodrigues Branco, Santos, Brazil.



Mechanical Ice Man Handles Ton Every 10 Seconds

TO KEEP perishable foods rolling, the Sante Fe Railway has installed a new kind of icing machine at its freight terminals. It travels on an elevated track (left above) and is electrically controlled by one man.

Scooping up 300-pound cakes of ice from a conveyor, it chops them into chunks weighing 25 pounds or less (right above), then dumps the pieces into as many as 30 cars strung out at either side.



Emergency Exit: Plane to Split, Toss Pilot Out in Its Nose

EXPERTS are hinting that jet ships have nudged into the 3,000-mile-an-hour class. That's a lot of speed to get away from in a hurry when a pilot faces trouble. A. M. Mayo, Douglas engineer, proposes a craft

that splits in half with the whole forward section carrying the pilot to safety. The pressurized cabin and nose of the plane would be shot away from the rest of the fuselage by rockets, then parachute down.



Will Your Next House Have Central Cooling?

Complete air conditioning has come out of the dream-home class. This year it's standard in developments priced for ordinary folks.

By Robert Lasch

TOWARD the end of a blistering Midwest summer, a Kansas City builder last August put on display a small, air-conditioned house. A three-bedroom ranch, as the real-estate ads say, its doors were opened at nine a.m. on a Sunday. By 11 a.m. it was sold for \$22,000.

Delighted promoters thought they saw a portent of things to come. Air conditioning might replace the super-duper kitchen as the lever for moving houses in the buyer's market that looms ahead.

If year-round air conditioning can be brought at moderate cost to homes costing less than \$20,000, the consequences may be far-reaching. Home design will be sharply affected, the entire crop of un-air-conditioned homes will become

obsolete more rapidly, and many towns will have to look for new and bigger sources of water supply.

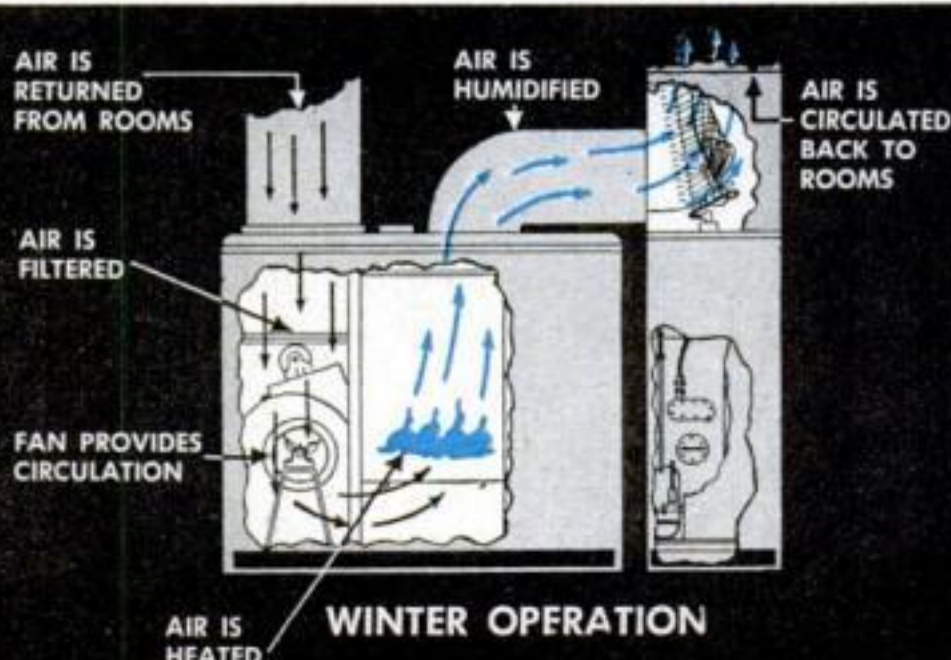
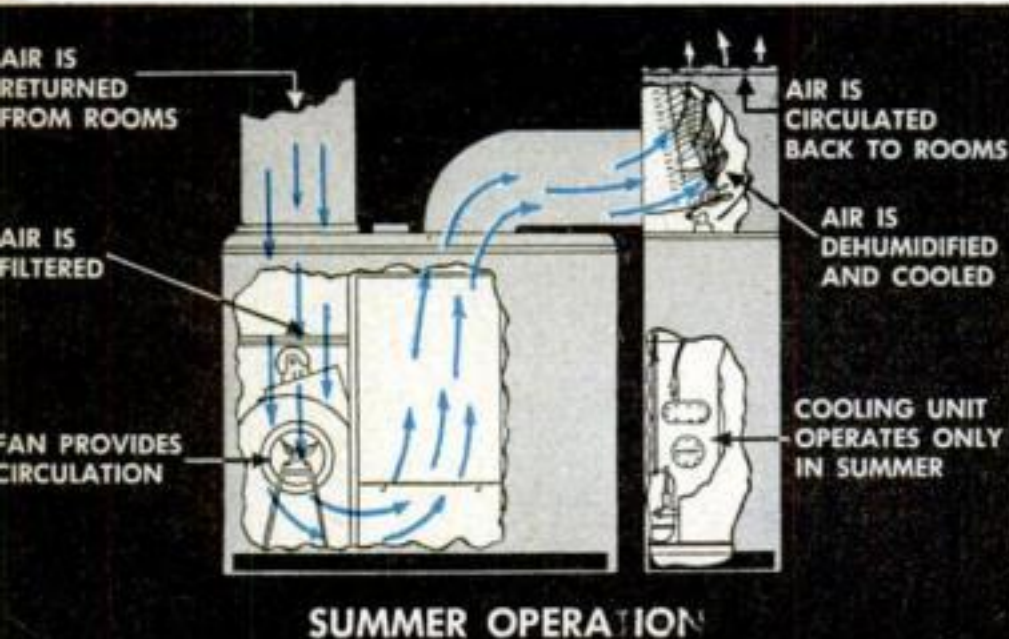
Air-Conditioned Houses from \$8,000 Up

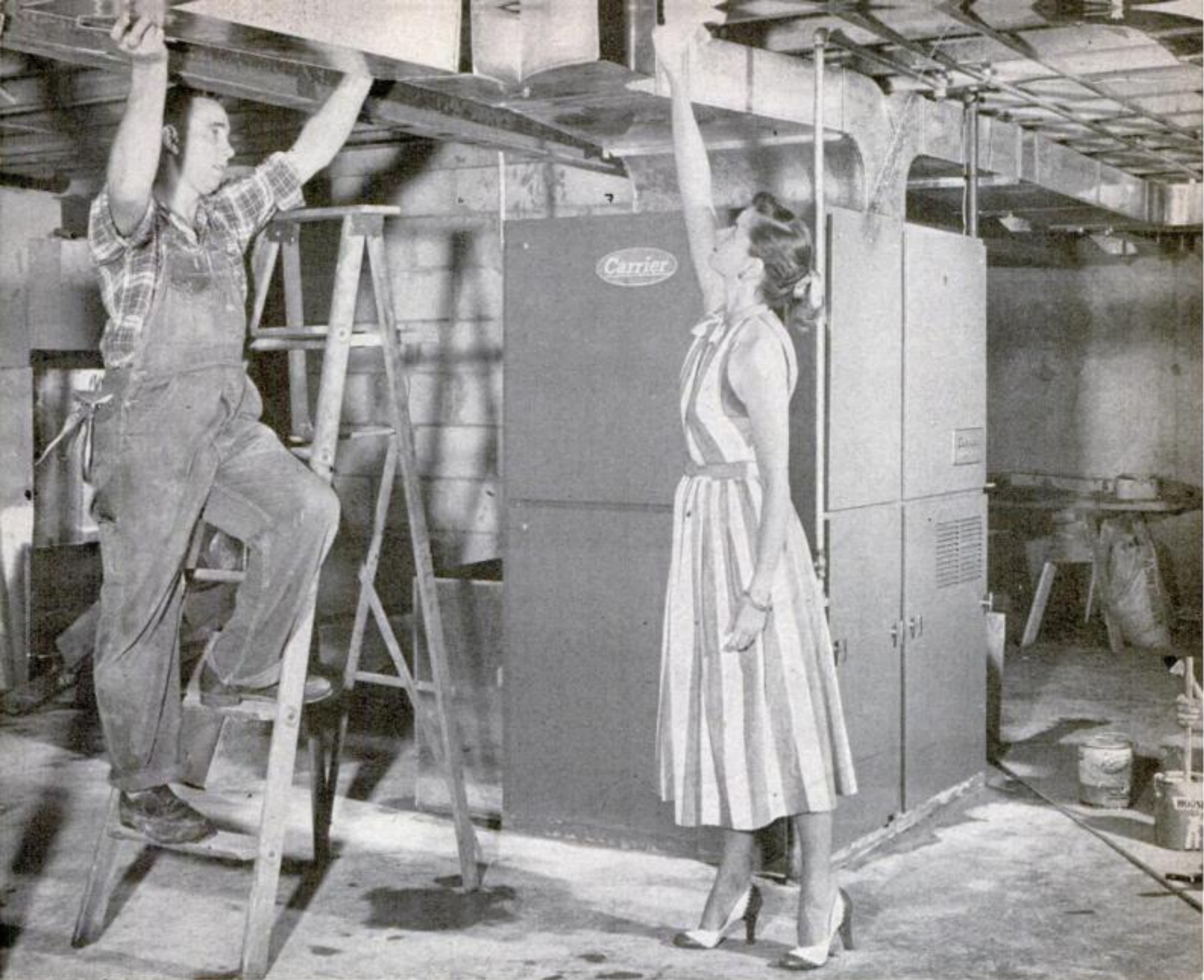
It may be too early to speak of a home air-conditioning boom—but Wadsworth Homes, Inc., a Kansas City firm that supplies sectionalized houses for local builders, plans to market 500 air-conditioned homes in seven midwestern states. In New Orleans, London Homes, Inc., last August built the first of 500 more. Others are in the works for St. Louis, Short Hills, N. J., and Greater New York. In Dallas builders have announced plans for 200 priced at only \$12,500. In Miami there are reports of air-conditioned houses planned in the \$8,000 class.

Behind this surge of interest are a

IN HOT WEATHER, a combination air-conditioning unit, such as the Chrysler Airtemp in the diagram below, circulates the air returned from the rooms over cold coils.

IN COLD WEATHER, the cooler is cut out of system; heating unit cut in. Airtemp heat unit can be either oil or gas type. Cooler can be used with existing hot-air heating system.





Wadsworth house in Kansas City, Mo., includes complete air conditioning at no extra cost.

whole flock of new domestic air conditioners. Some are combined in a package with a furnace. Others can be attached to existing hot-air heating systems. All take whole-house, all-year air conditioning out of the custom-built, super-luxury class and bring it within reach of millions

of homeowners with moderate incomes.

You have your choice of units in various sizes from $\frac{3}{4}$ ton to $3\frac{1}{2}$ tons (ample for a seven-room house) and bearing the name-plates of famous manufacturers such as Carrier, Chrysler, Westinghouse, Servel, General Electric, York, American

AIR-CONDITIONING UNIT goes into basement the first day in some construction. Basement floor will be poured around and beneath the unit later, after the house is built above it.

IN NEW ORLEANS HOUSING PROJECT using slab construction, combined cooling-heating unit is set up on slab to determine just where it will go. Note slot in slab—air source for unit.



Radiator. A "ton" means here how much an air conditioner can cool.

Regardless of who makes them, all these packaged air conditioners except Servel work pretty much on the same principles. (Servel is different in using an "absorption" system in which the refrigerant is alternately heated and cooled instead of being compressed.) Most of them use the same duct system winter and summer. A thermostat switch operates the whole contraption. To heat, you flip a toggle, pick your temperature, and the big fan runs air over the heating grid. In summer an automatic damper bypasses the heater and routes the air across a coil of spiral-finned cooling tubes.

The cooling section works like an enlarged version of your refrigerator, except that it uses water instead of air to cool the refrigerant. Heat and humidity are taken out of the house air by the refrigerant, and the heat is taken out of the refrigerant by water. You get a complete change of air in five minutes.

More Than Comfort

People who visit the new air-conditioned display houses that are springing up quickly see that there's more than comfort to air conditioning. For one

thing, it may mean significant changes in home design.

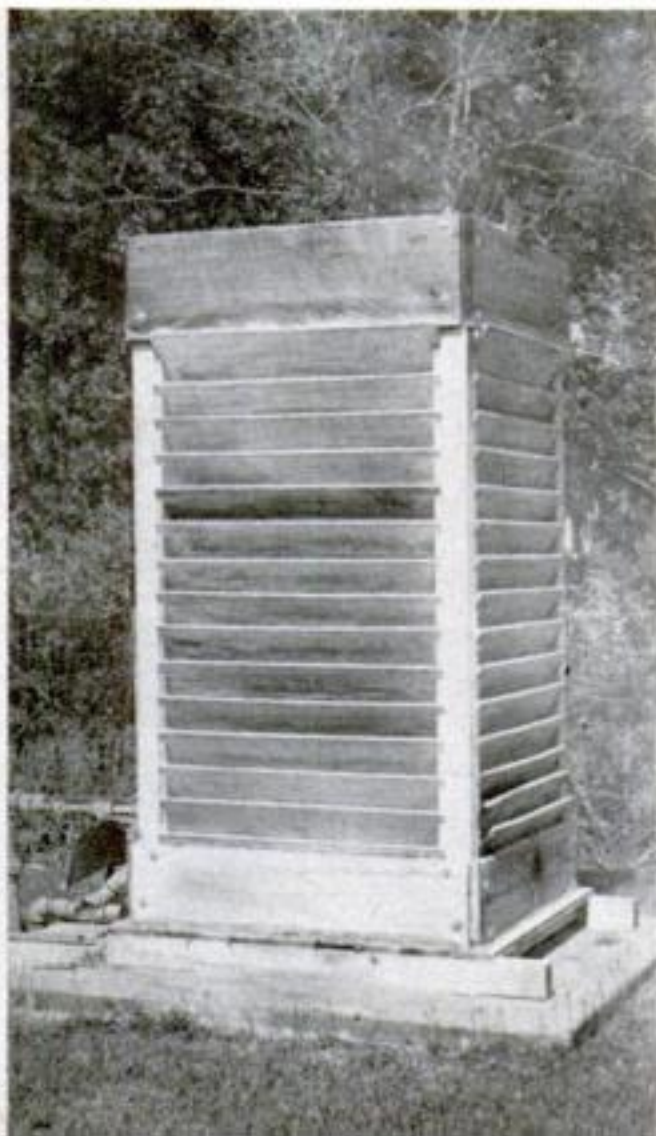
With cross ventilation unnecessary, the house plan becomes more flexible. The Wadsworth house has high windows in the two bedrooms facing the street, making for privacy and more mobile furniture arrangements. The living room has a large picture window facing the rear. All of its panes could be fixed, though some are movable because customers might not accept a fully sealed house. Along the kitchen and dining room a solid wall, providing space for kitchen equipment, storage wall and stair well, is feasible because there's no need for ventilation on that side.

It's Only the Beginning, Folks

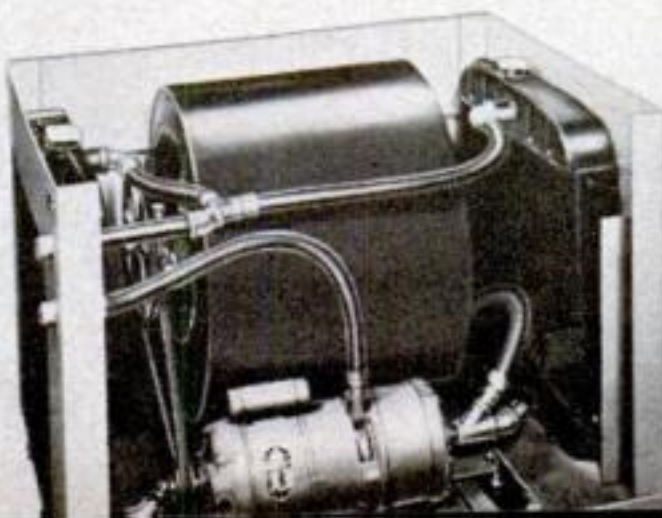
Such changes are only a token of those that could be made if an architect and his client let themselves go. With air conditioning the entire street wall can be solid and all windows located on one side for light and view. Bathrooms can be placed with maximum space economy on interior walls. All windows may be fixed, without movable sash or louvers.

Air conditioning, in short, may make the window something to see through but not to let air through. The price of this,

Where Water Is Scarce, Re-using It Cuts Cooling Costs



WATER COOLERS permit re-use of water after it has carried heat out of house. Marley natural draft tower (left) sprays water in air, cools it by evaporation. It must be exposed to wind. Aquatower (right), a mechanical-draft type, uses fan to blow air through water as it trickles down series of redwood slats. Unit can go inside house if it has access to outside air. Chrysler Water Saver (below) runs water through two auto-type radiators while blower draws air through them.



of course, is willingness by the householder to live sealed up in summer as he now does in winter—which means giving up the smell of fresh-cut grass and such summer sounds as birds twittering and the whirr of the neighbor's lawn mower.

How It Saves Money

Such radical alterations in design are in the future. But there are minor changes that can save money right now.

Carrier's 3½-ton unit costs the Wadsworth builder just under \$1,800 installed. A hot-air heating system alone would cost about \$700. The elimination of windows, the use of fixed sash and the omission of two extra corners that would have been needed for cross ventilation saved a total of \$550. An attic fan would have come to \$300. That still leaves \$250 extra for air conditioning, but this builder figures his special building system more than makes up for it.

Cooling Is Expensive

Cost of operation is something else. This varies, of course, according to climate, the design of the house and local rates for electricity and water. But a good guess is \$1.25 a day up.

Generally, the air conditioner will cost more for cooling two months than for heating seven months, although some installations show about a 50-50 split for the two functions. One Carrier job in a 1,400-square-foot house at Lincoln, Neb., reported the following record for 52 days of cooling:

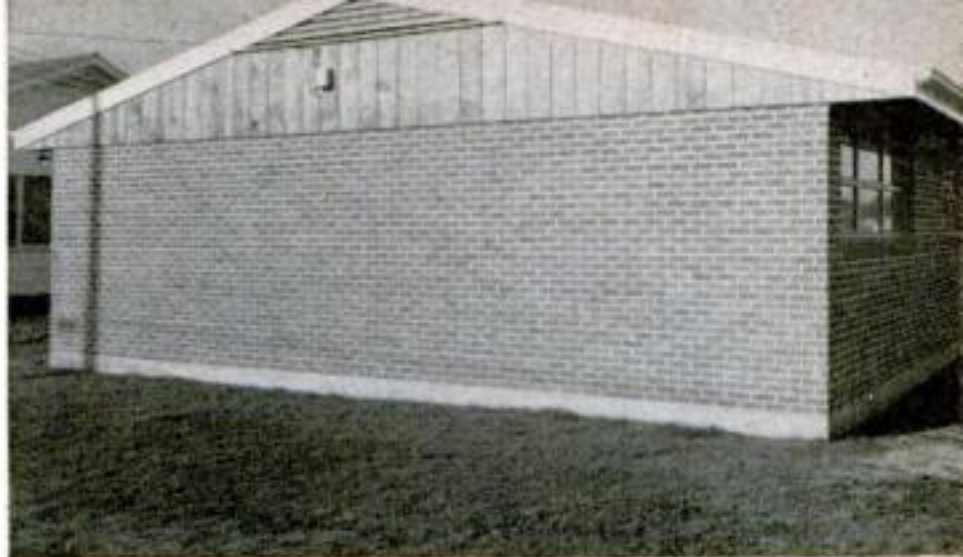
Heating cost (natural gas): \$66.06.

Cooling cost: \$74.10.

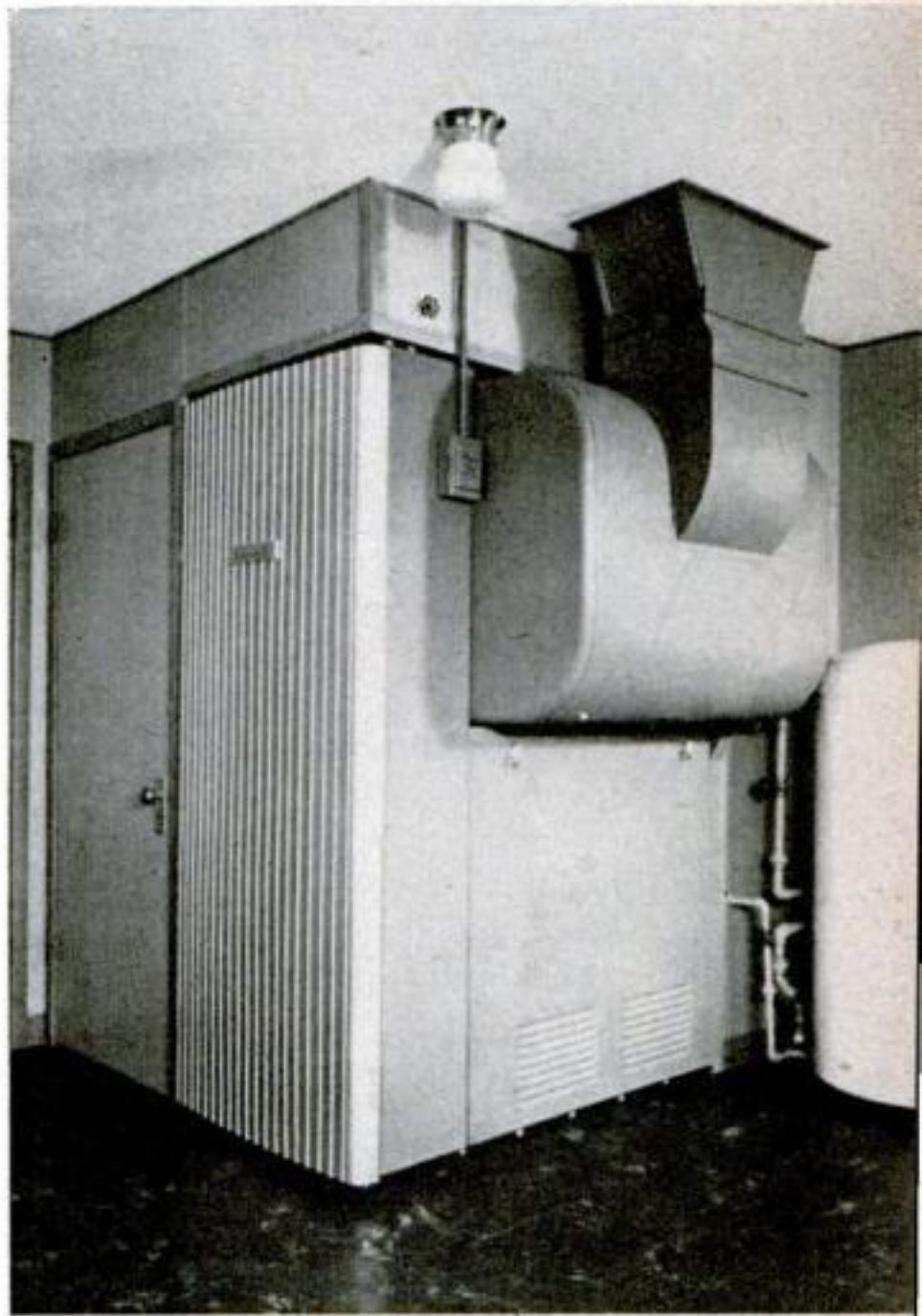
Electricity for cooling: 3,414 kwh.

Water for cooling: 198,000 gallons.

Ordinarily, the water, which is heated to 95° to 100°, goes down the drain, but where water is scarce or costly, it may be re-used by running it through a water tower in the yard, which adds up to \$400 to the cost of installation. The tower is really a big shower stall, eight to 10 feet high. Warm water discharged from the cooling unit is pumped to the tower and sprayed into the air, where evaporation reduces its temperature and prepares it



WINDOWLESS WEST WALL of this New Orleans house is possible because air conditioning makes cross ventilation unnecessary. Blind wall shuts out fierce afternoon sun.

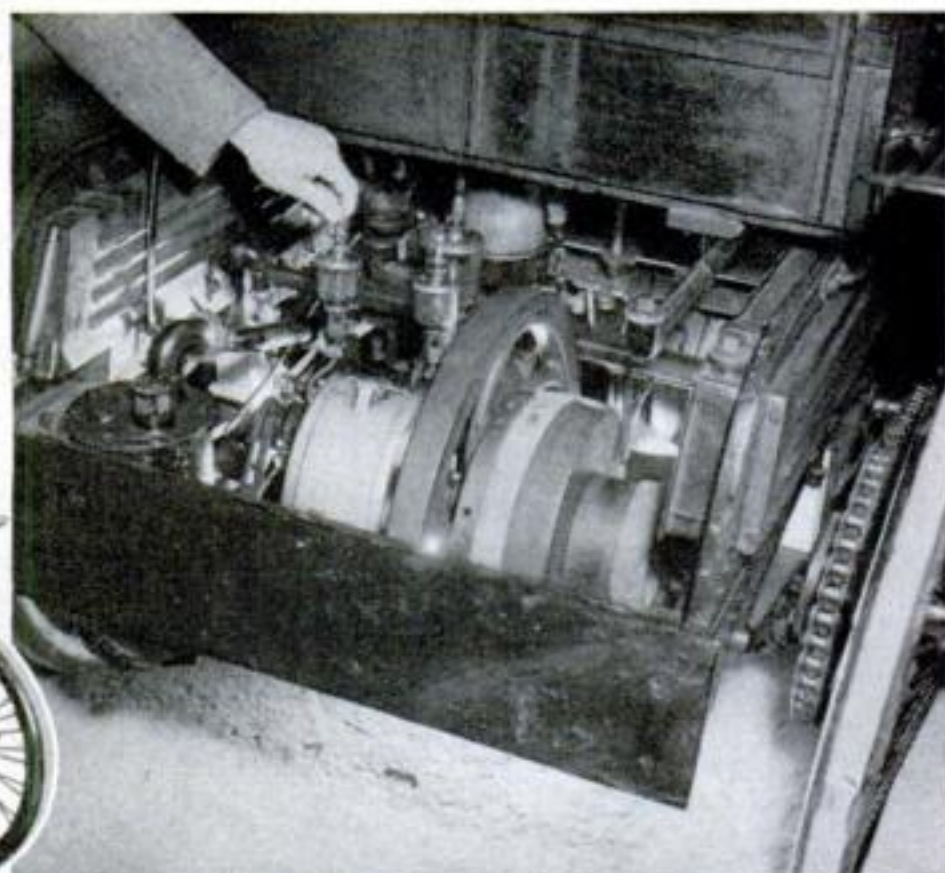
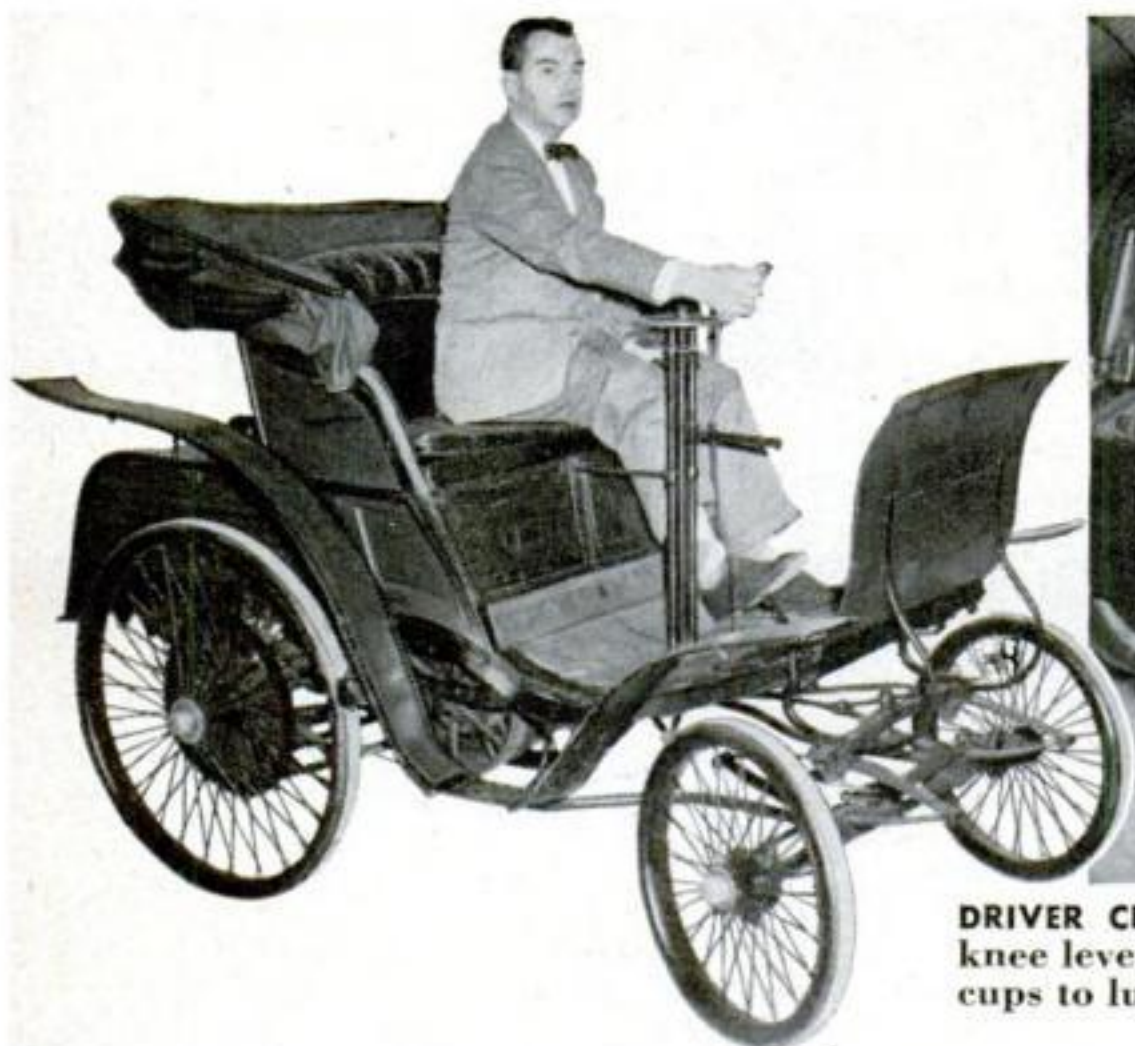


SERVEL'S five-ton all-year-round air conditioning unit, above installed in cellar, works on different principle from others. It uses steam both to heat winter air and cool it in summer.

to go back and pick up more heat from the condenser. Since the water can be cooled by evaporating less than five percent of it, the tower makes it possible to re-use more than 95 percent of the water.

There must be at least a gentle breeze for the tower to work properly, so another type uses a fan to move the air past the water.

[Continued on page 260]



DRIVER CRANKS TO STEER (left), shifts with knee lever. Engine (above) has drip-feed oil cups to lubricate main bearings and cylinder.

German Ancestor of the Model T Pays First Visit to U. S.

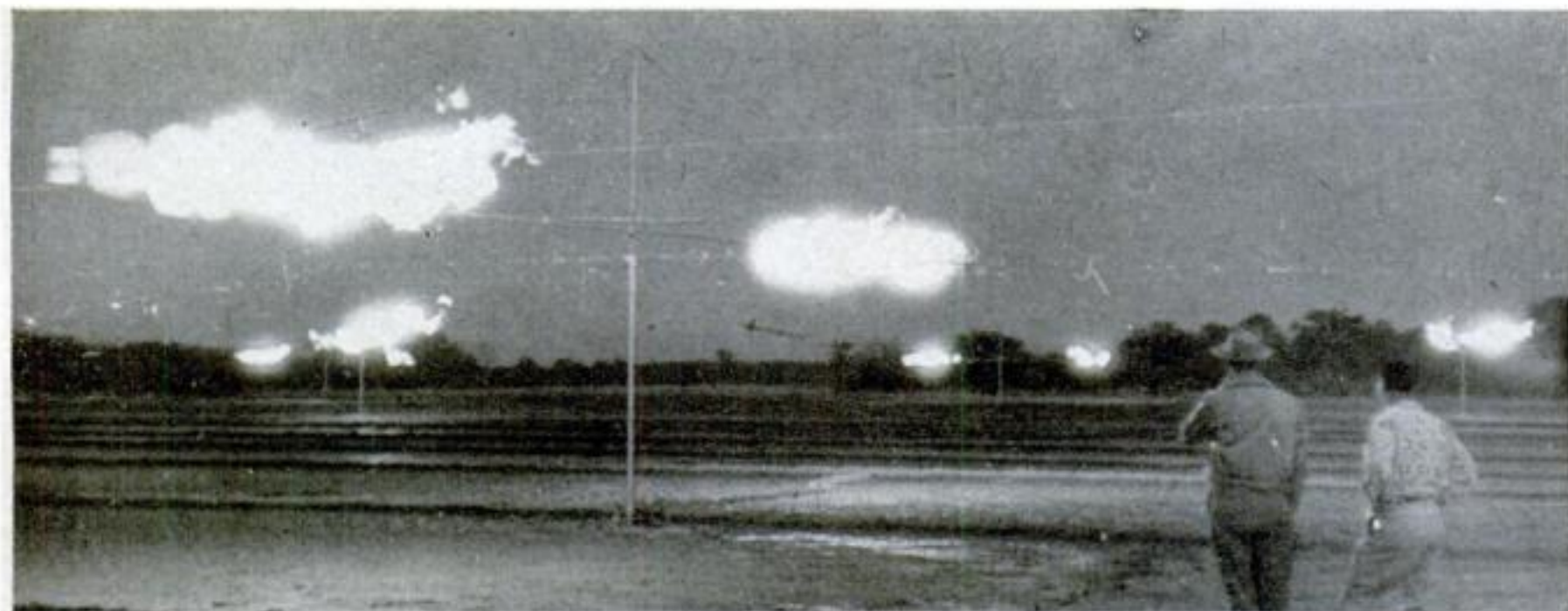
HERE'S the world's first cheap car—the 1900 Benz “Comfortable”—a chain-driven German runabout that sold for \$500 when most cars in existence cost far more. It will be displayed here to mark resumption of Mercedes sales in the U.S.

Only 1,000 of the cars were built between 1893, when it was designed, and 1900, when Benz stopped making it. Rolling on solid rubber tires, the Comfortable carried two passengers on a leather buggy seat that must have provided bleak comfort. For a

little extra, its owner could have a rear-facing jump seat fitted to the dashboard.

The car weighed 726 pounds and could rip along at 19 miles an hour. A flat, one-cylinder gasoline engine at the rear developed three horsepower. A combination of belt-changing gears and a planetary gear gave three speeds forward but no reverse.

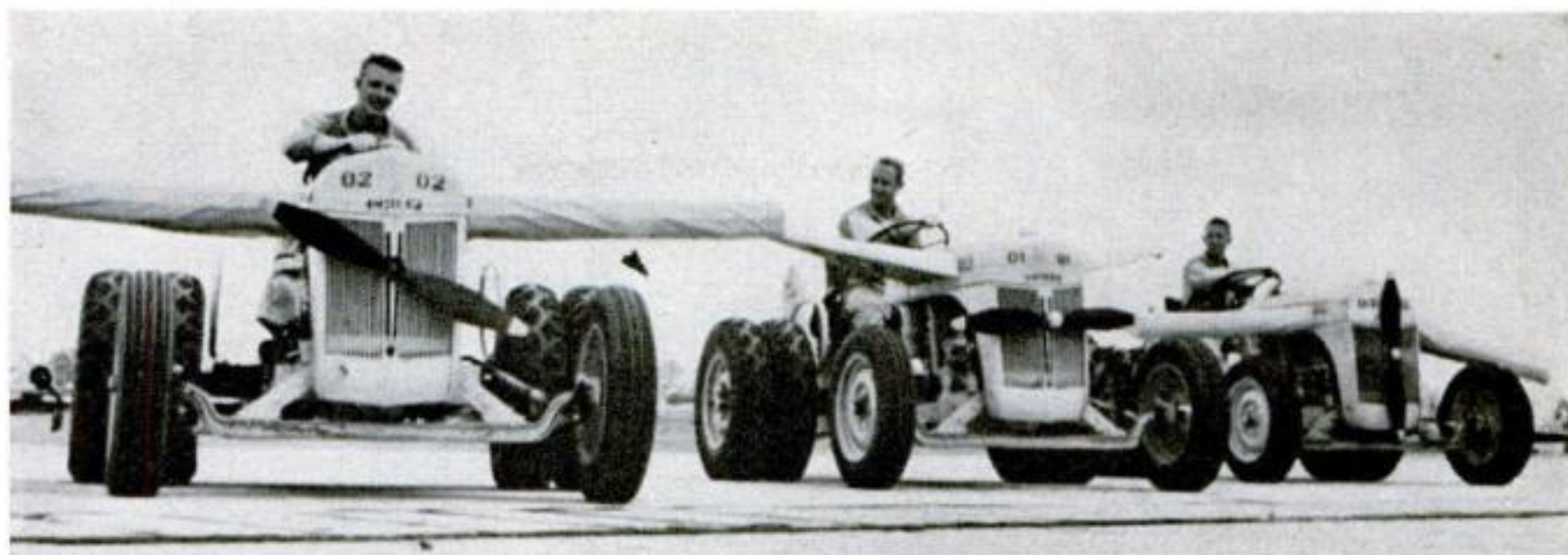
The runabout's battery-ignition system was one of the reasons it sold for less than other cars of the time. Most of them used costly magnetos.



Underground Gas Helps Farmers Fight Frost with Fire

WHAT looks like St. Elmo's fire in the night shot above is flaming natural gas protecting crops from frost in Texas. Piped from underground, the gas is fed to heaters that are shaped like crosses and rise 10

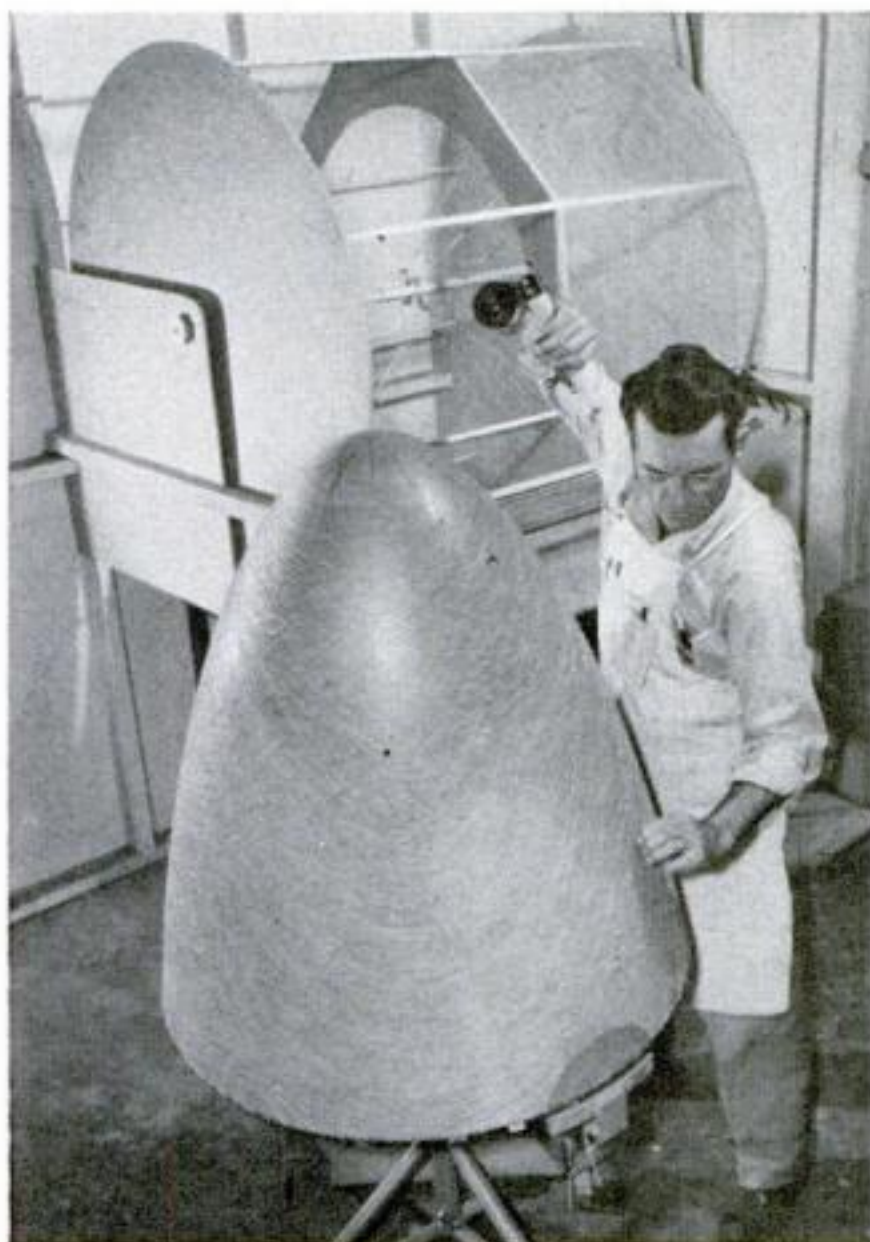
feet in the air. Each cross has jet-tipped arms 46 feet long that rotate like lawn sprayers. One heater takes care of 1½ acres. Leonard A. Salmon of Hidalgo County devised the heaters.



Winged Tractors Give Pilots a Workout on Foggy Days

WHEN the ceiling is zero, these Naval Aviation cadets still practice formation flying. They tootle around Saufley Field, Fla., on tractors with false wings, tail assemblies

and props. In groups of three, they wheel and turn in the fog, forming aerial patterns on the ground. In fair weather, the boys fly SNJ trainers.



Thread Toughens Plane Nose

THIS workman is wrapping a plastic radome with a glass-fiber thread 24 miles long. Molded in place under heat and pressure, the thin filament—only six thousandths of an inch in diameter—will make the plastic nose more rugged when it bucks heavy air pressures and takes the battering of hail. North American Aviation plans to wind the radomes by machine for F-86 Sabres after experimental tests have been run.

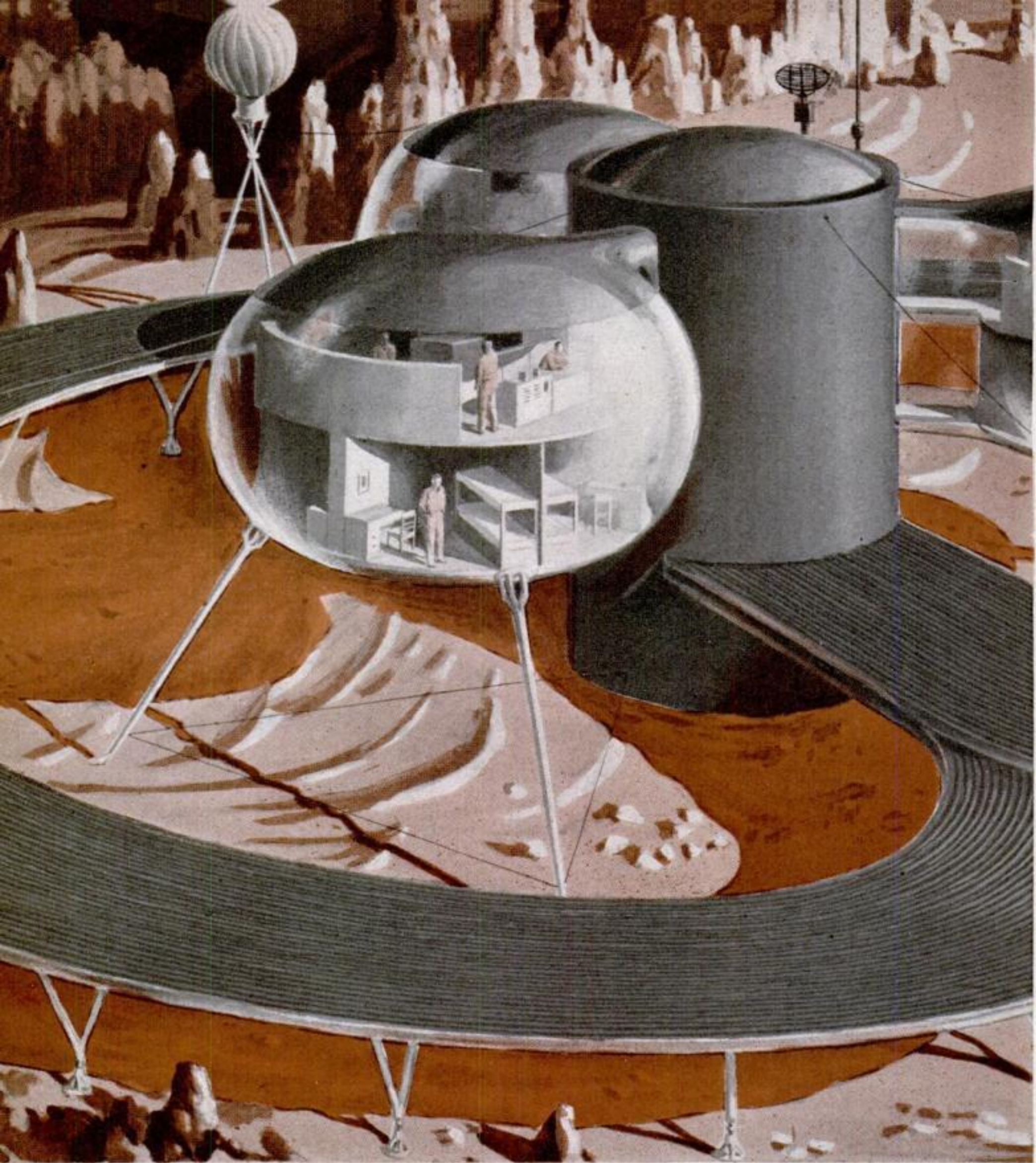


75 years ago this month

Popular Science Monthly reported:

"WE ARE evidently fulfilling at least a part of that well-known poetical prophecy which Darwin wrote in the early days of the steam engine, and possibly before Watt had told him of the great advance which had been produced by his inventive genius:

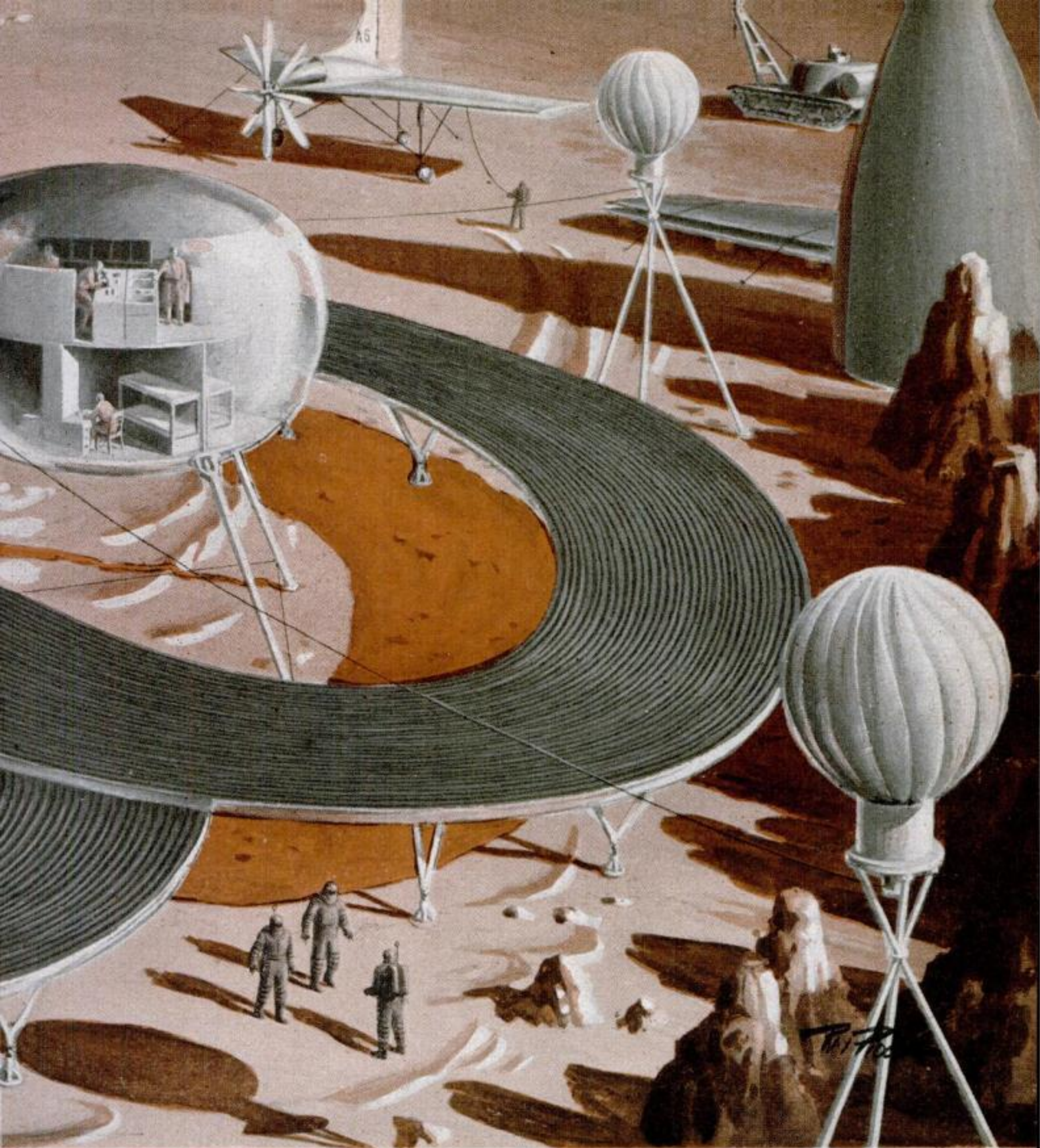
"Soon shall thy arm, unconquered
steam, afar
Drag the slow barge, or drive the
rapid car;
Or, on wide-waving wings expanded,
bear
The flying chariot through the
fields of air.'"



Proposed Mars base looks like this. The heart-shaped ring captures solar heat to warm living

How We'll Live on Mars

A bold scientific report describes an amazing scheme that would let a party of 33 set up housekeeping on our neighbor planet.



quarters for 33 men in spheres and cylinder. Plane and tractor will run in oxygenless air.

By Alden P. Armagnac

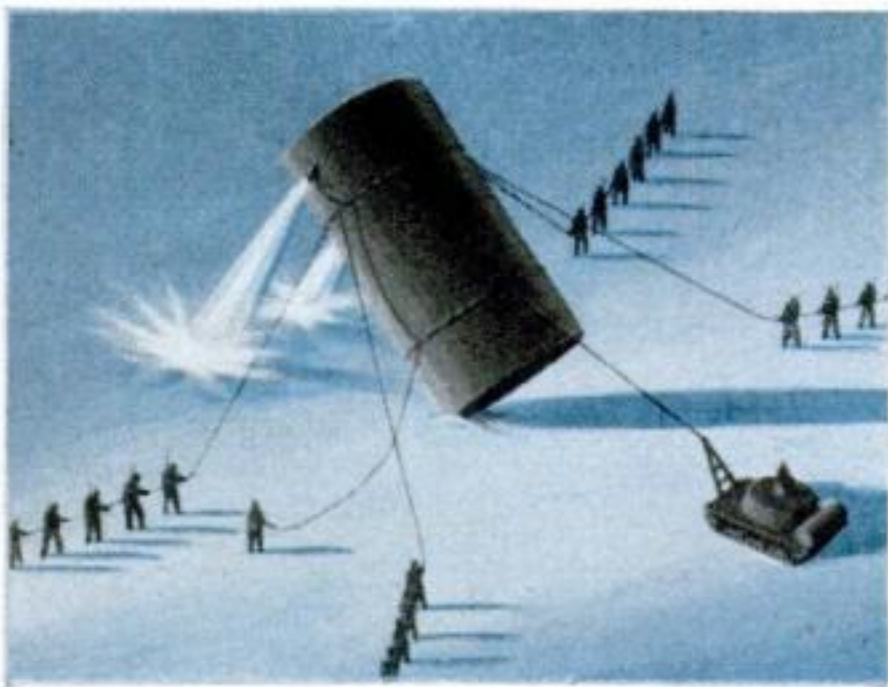
WHEN the first expedition from Earth sets foot upon the planet Mars, 33 courageous men will make up the landing party.

From a winged rocket ship that has swooped to a horizontal landing on

wheeled gear, they will emerge wearing pressurized suits and oxygen helmets.

As they step to the dusty red ground, one of their number beyond doubt will plant a flag to mark the history-making achievement. But there will be scant time for ceremony.

For the landing party's first and press-



AS FIRST STEP IN SETTING UP BASE, landing party's rocket ship is stripped of nose and wings, and jato units are attached at end of remaining aluminum-clad cylinder. Steadied by lines, it is up-ended to form hub of base.



SOLAR HEATER, plastic envelope containing six-inch air ducts, is first of extensions to emerge from hub. As compressed air inflates loose folds, it forms a ring 16 feet wide and nearly 150 feet in over-all diameter.



PLASTIC SHELLS forming living and working spaces now emerge from other ports of cylinder. Expanded, they form three flattened spheres, each about 32 feet wide and 20 feet high, containing an artificial atmosphere.

ing task will be to erect living quarters that will house the 33 and enable them to survive a 430-day stay in Mars' rarefied and oxygenless atmosphere before returning to Earth.

Seen from a distance, the weird structure forming their completed base will look like a number of eggs propped up and balanced on toothpicks. Because it must be engineered especially to suit the novel conditions on Mars, and to be transported there in a rocket ship, it will resemble nothing ever seen here on Earth.

Master's Thesis Studies Problem

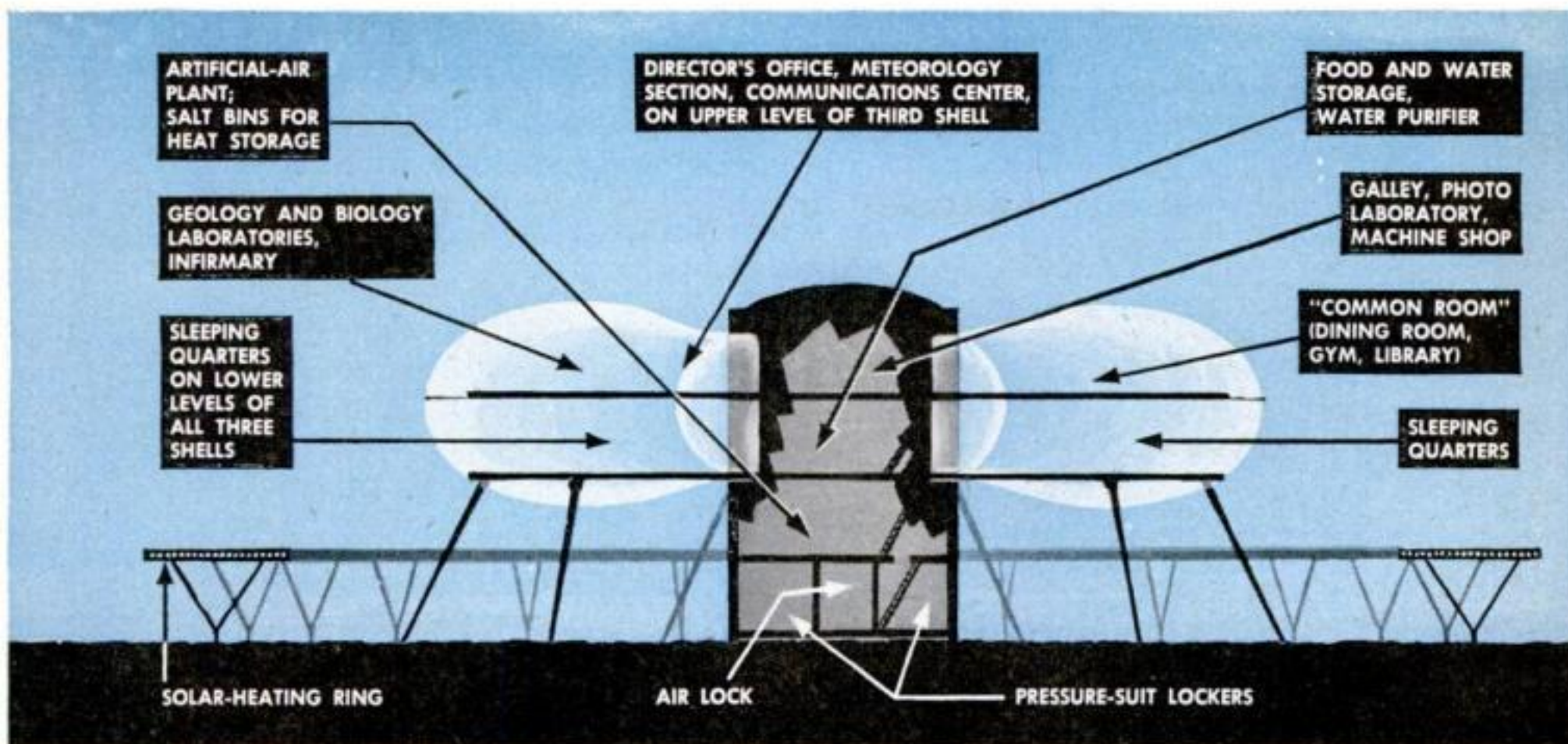
So unusual and challenging are the problems of designing a Martian base that a special study of them has just been made. The result, a 79-page thesis entitled "A Prototype Technical Research Center for Extraterrestrial Exploration," has been submitted by Alfred William Moffett in partial fulfillment of the requirements for the degree of master of architecture at Massachusetts Institute of Technology.

In preparing it he has had the interested assistance of a panel of experts including leading MIT and government scientists. For authentic information on even the most minor points, he has pored through scores of technical treatises and scientific reports. Thus he arrives at the documented and authoritative conception summarized on these pages. Architectural sketches and diagrams illustrating his thesis have served as the basis for the artist's drawings reproduced here.

Expedition Planned, Too

In order to visualize a Martian base, Moffett realized at the outset, he would have to know how many men would make up a landing party on the planet, how long they would stay there, and exactly what they would want to do during their stay. So he and his scientific advisers found themselves the planners, not only of the base—but also of the expedition itself.

Scientific discoveries will be the ob-



CUTAWAY VIEW OF ERECTED BASE shows interior arrangement of central cylinder and spheres. Laboratories, galley and combination dining

and recreation room occupy top level; sleeping quarters, next level below. Air lock at ground level is the base's entrance and exit.

ject of this voyage to a new world. Once and for all, it will settle the moot question of whether life exists on Mars—and, if so, what kinds. It will solve the riddle of the planet's "canals," believed by some to be engineering works of intelligent beings, and by others to be natural markings. First-hand studies will be made of Mars' wind, weather and climate. Minerals will be collected that may be new to science, or rich in elements rare and coveted on Earth. Strange and beautiful gems, born perhaps of volcanic conditions unlike those on our own planet, may sparkle from Martian rocks.

Roster Already Selected

And so the landing party's personnel will consist largely of experts in these fields of science. Here is its proposed roster:

Administration: A director, two clerks and a supply officer.

Scientific Operations: Three meteorologists, three biologists, a doctor, four geologists, and 13 technicians to assist these scientists.

Technical Services: Two radiomen, two pilot-mechanics, a machinist and a cook.

The director will choose a second-in-

command from among the others of the party. The supply officer will also be chosen from among the personnel, and assigned that duty in addition to his others; hence the estimated total of 33 men for the landing party.

It will contemplate no such fantastic scheme as attempting a nonstop flight from Earth to Mars—for that would call for a spaceship of size, power and fuel capacity too remote from practicability to be considered at the present stage of rocket technology.

So it is presupposed that, before the Mars venture, a satellite station has been set up in space about 1,075 miles above Earth as a terminal and fueling stop for interplanetary spaceships.

Mars Satellite the Jumping-Off Place

And space-construction gangs of Earthmen carried onward by these ships, it is further assumed, will have succeeded in establishing a similar space station as a satellite of Mars and only 600 miles away from it. To an observer at this farthest outpost, the planet looms up so close and large that it presents a truly magnificent spectacle. More than halfway across the star-flecked sky extends its enormous disk of orange and blue-green, seemingly

only just beyond reach—tantalizing, mysterious, perilous.

It is from this jumping-off place, then, that the landing party boards a delta-wing rocket ship for the culminating adventure—the first voyage to the surface of Mars.

So that Mars' gravity can take effect upon the ship, rocket jets brake its orbital speed, and the rocket motor then is jettisoned. As an airplane, the craft spirals down through Mars' thin atmosphere to the planet's surface.

The landing confronts the explorers at once with one of the most formidable of the facts of life on Mars. Its air contains little or no oxygen, certainly not enough to keep an Earthman alive. And so low is the atmospheric pressure at Mars' surface—equivalent to that at 10-mile altitude above Earth, or twice the height of Mt. Everest—that exposure to it would risk a fatal attack of "bends." Explorers must use artificial oxygen and pressure.

Clad in protective, inflated pressure suits with oxygen gear, they put into action a well rehearsed plan to set up a base affording livable surroundings. Its cylindrical hub, the stripped fuselage of their

spaceship, sprouts extensions of Fiberglass-reinforced plastic, which are inflated with compressed air. They form a solar-heating ring, in which air is warmed by the sun's rays; and three nearly spherical shells serving as two-story living and working quarters, with floors suspended on cables. Light struts supporting these appendages are anchored to the ground with pins shot from cartridge guns.

Erecting wind generators for power, and leading electric cables from them to the base, complete the

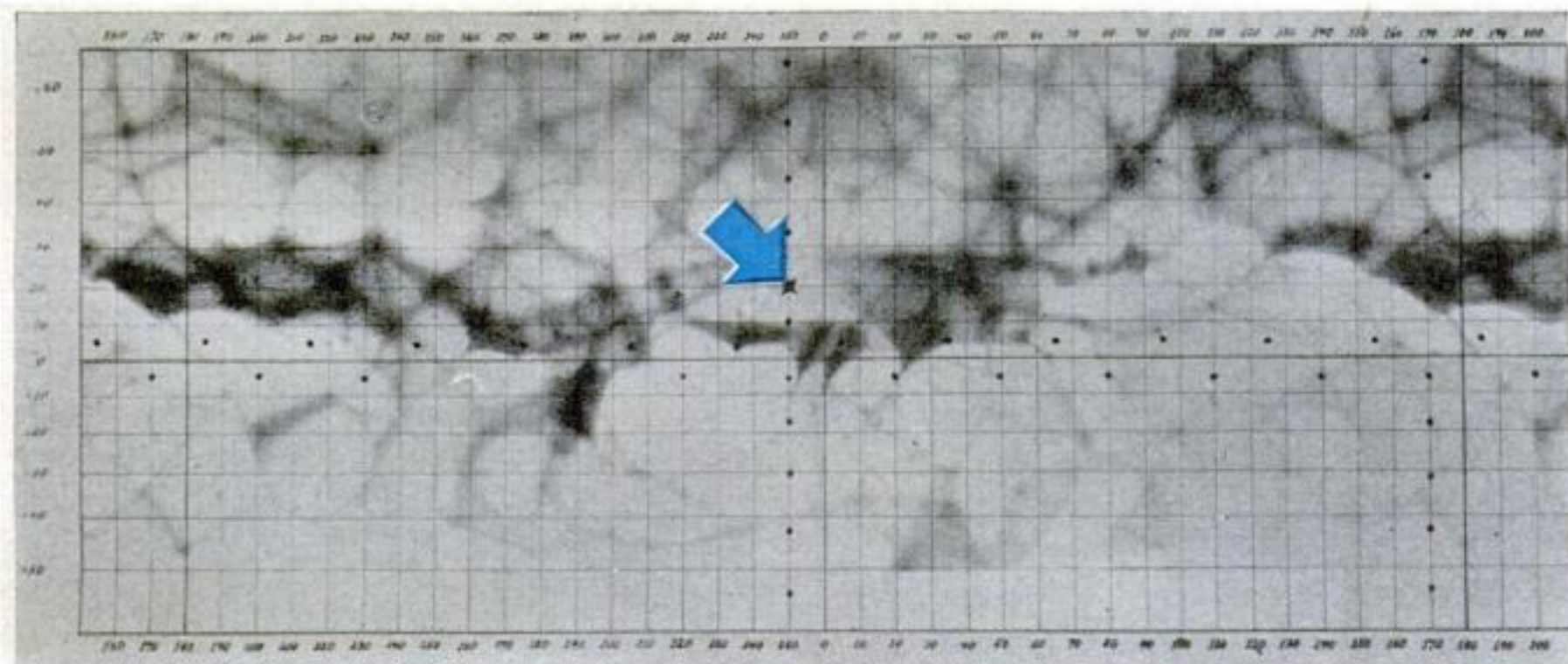
exterior preparations.

Now the explorers can breathe more freely—figuratively and literally. Entering their new base through an air lock in the central cylinder, they can doff their pres-

[\[Continued on page 262\]](#)



DECONTAMINATING MIST sprays explorer in air lock as he returns to base, lest he bring in Martian germs that might cause diseases hitherto unknown.



MERCATOR-STYLE MAP OF MARS shows proposed site of base (arrow) and of automatic

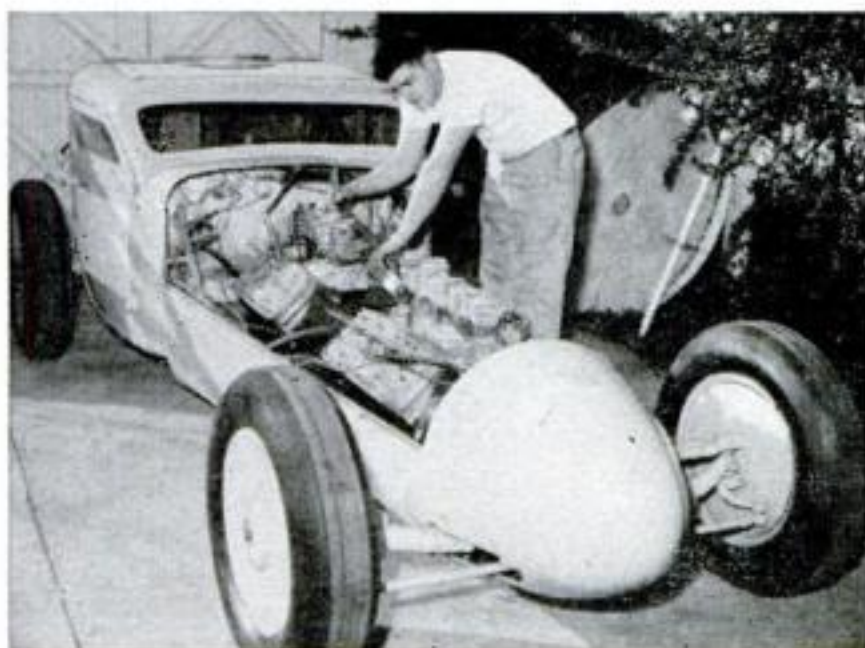
weather stations (small dots). Sub-base sites would be chosen after landing party arrives.



Packard Offers New Sportster with Italian Look, 180 Horsepower

PACKARD's bid for the super-duper sportster trade is the custom-built Caribbean above. It costs \$5,200 and was developed from the hand-built Pan American which won styling and engineering awards at two

motor shows. The car has a 180-horsepower engine and a 122-inch wheelbase. The Italian school of design is reflected in the wire-spoke wheels and cut-out rear fender. There is a real air scoop on the bonnet.



Twin Mercs Make 198 M.P.H.

THIS twin-engine job hit 198 miles an hour—a world's record for its class. Mickey Thompson of Alhambra, Cal., built the car around a Ford chassis. Two Mercury engines with chain-link connection are mounted tandem. Most of the body of the 1,832-pound car is glass-fiber-reinforced plastic.

Thompson also races the same car in other classes by replacing the 275-horsepower twin Merc with a Chrysler or Ford.

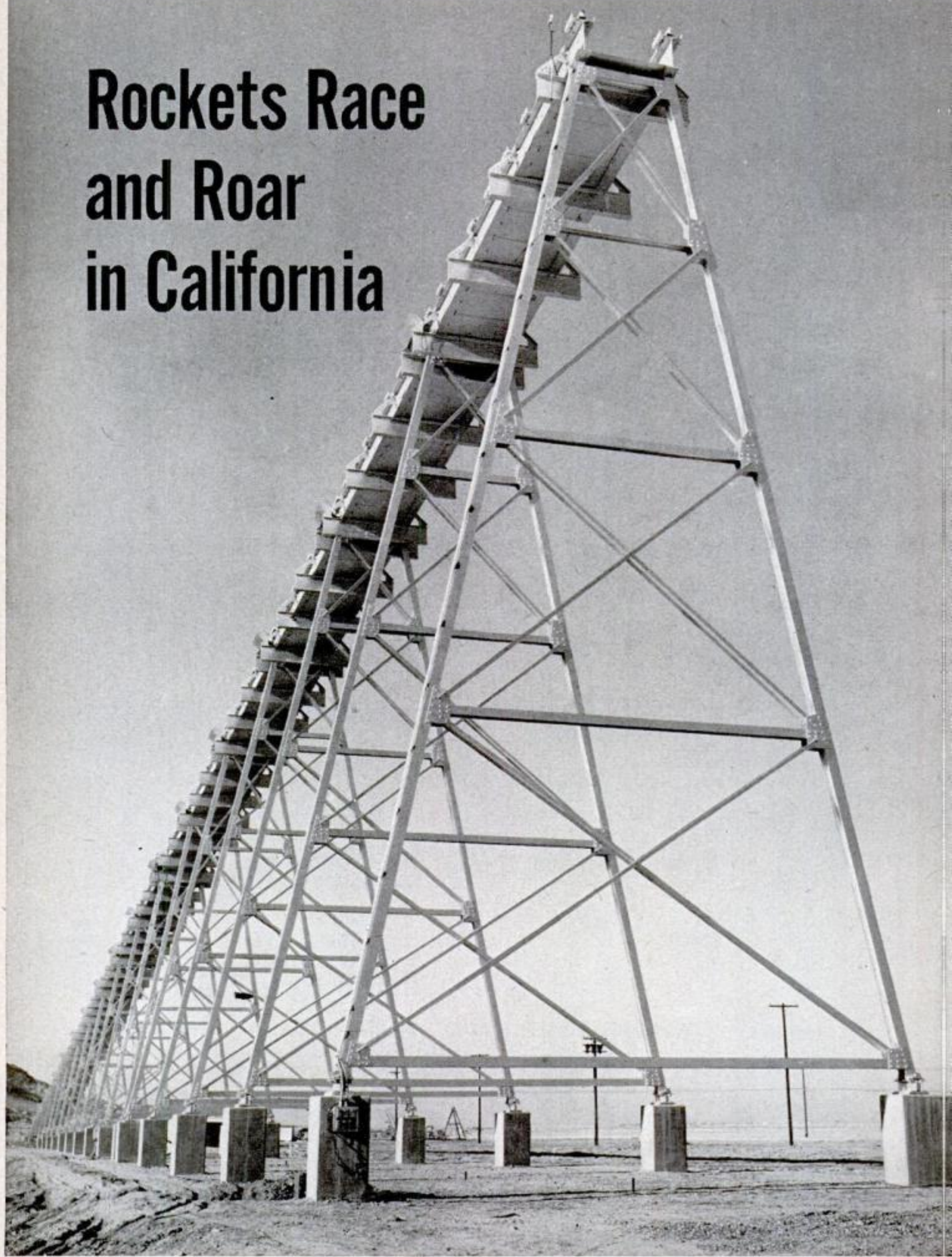


Station Wagon Sleeps Two

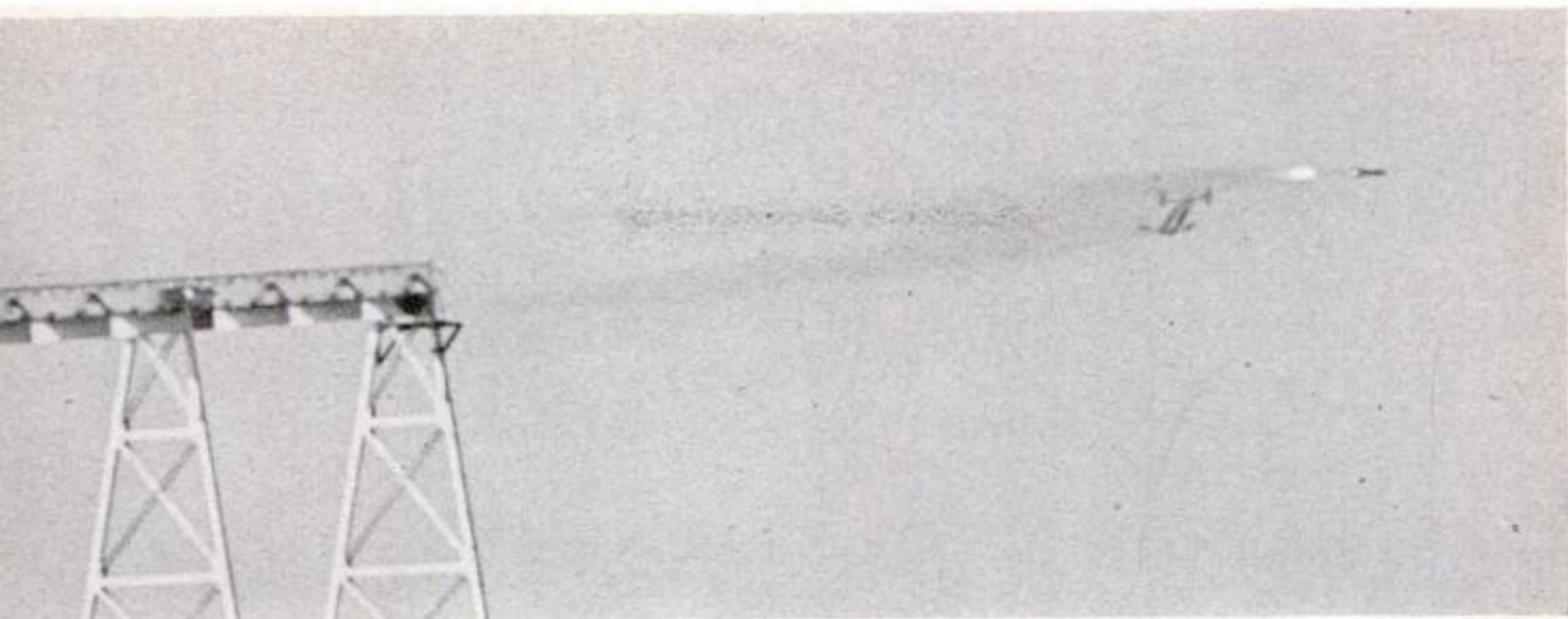
A VERSATILE British car goes the American station wagon one better. It will carry seven passengers or, with seats removed, handle the usual light trucking. Then, come nightfall, it provides beds for two.

Turning the seats upside down forms overnight sleeping accommodations or allows use of the car as an emergency ambulance. The Utecon was displayed at a commercial-vehicle show in London.

Rockets Race and Roar in California



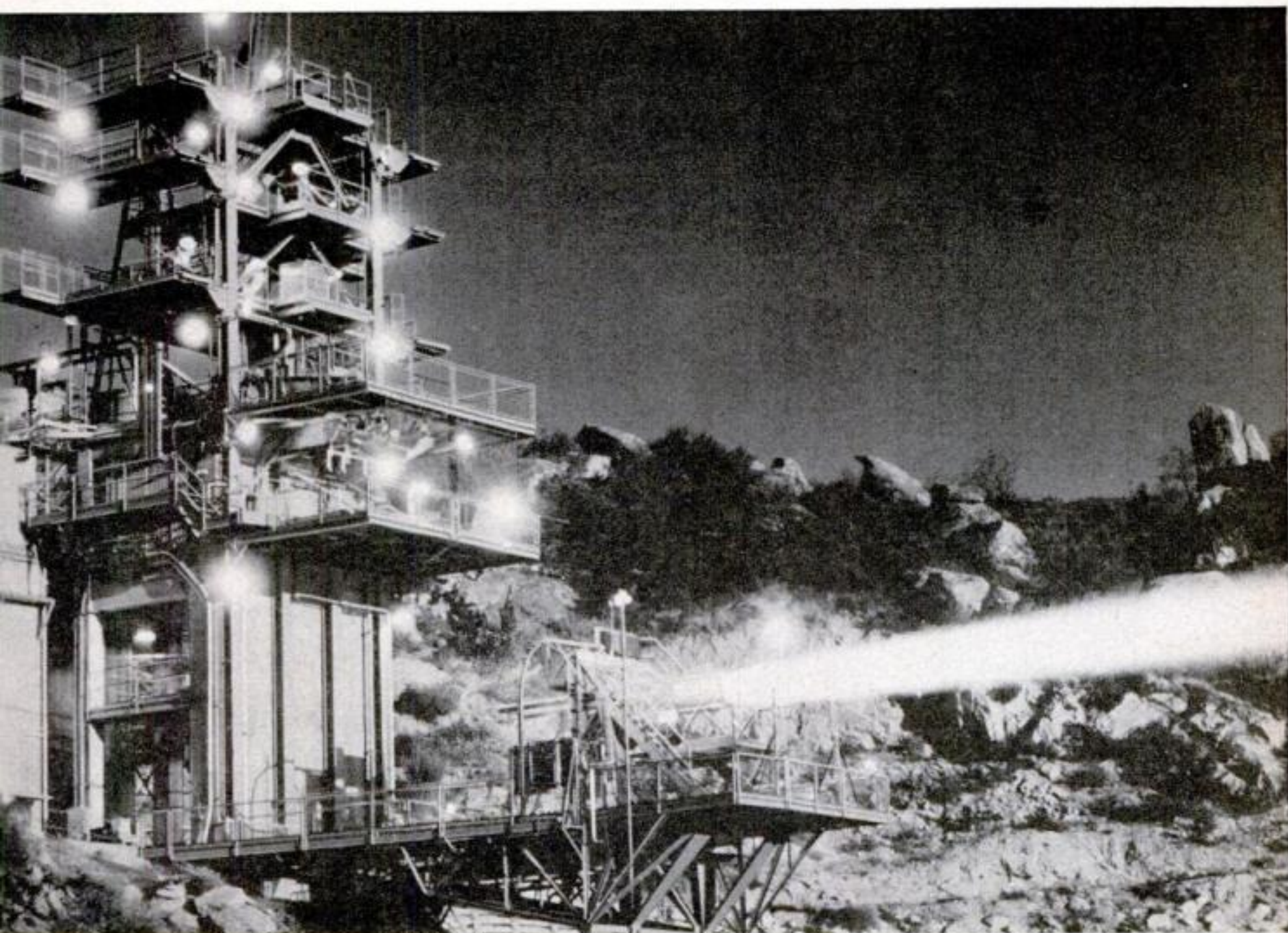
Launching end of Navy's 544-foot inclined rocket ramp at Inyokern stands 60 feet high.



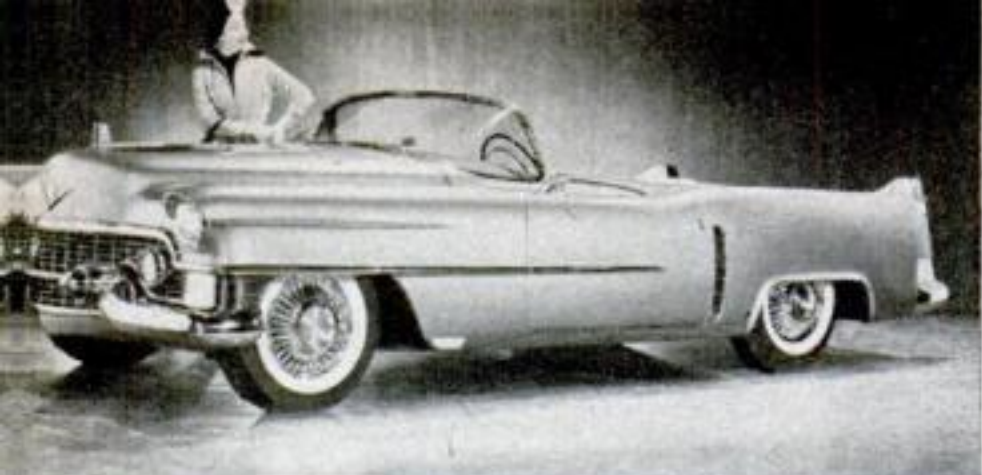
Holy Moses five-inch rocket drops booster (upper right), is off at 1,200 m.p.h. over desert.

THE deadliest rockets in our arsenal are scaring jack rabbits and rattling mountains as they undergo top-secret tests in California. A potential air-to-air missile roars along an inclined railroad track at Inyokern. It leaves the launcher at 500 miles an hour, quickly hits 1,200. On a two-mile

level track other rockets put on their show of power for cameras and recording instruments. In the Santa Susana mountains new rocket motors scream through their paces in the world's biggest test stand—a seven-story tower. Now an 11-mile-long test track is being built at Inyokern.



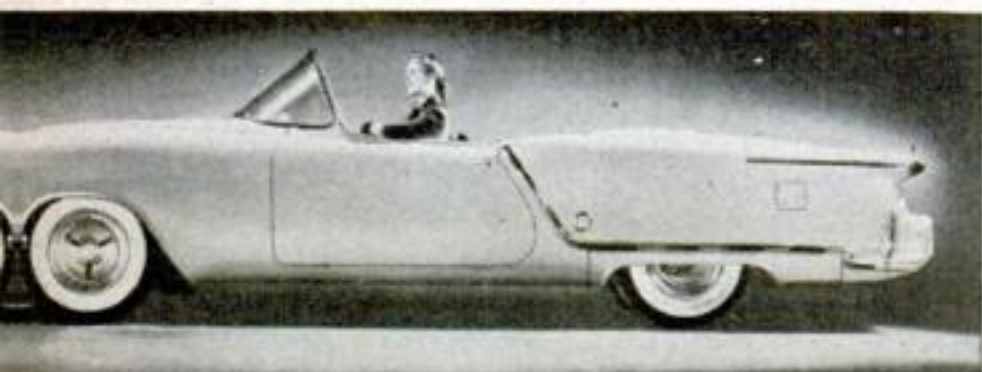
Rocket motor on North American Aviation test tower lights up Santa Susana mountainside.



FANCIEST of single-copy GM cars, Cadillac's Le Mans is 5½ inches lower than standard Caddy convertible. It has embossed-leather seats, needlepoint rug, 250-hp. engine.



MOST STREAMLINED is Buick's Wildcat, trimmed in green leather. Only 51 inches high overall, it has perforated front wheel disks that remain stationary while wheels revolve.



ROOMIEST is Oldsmobile Starfire, seating six. With plastic-Fiberglas body, car has 200-horsepower V-8 engine, automatic transmission, power steering, power braking.



MOST REGAL is Pontiac Parisienne, built on town-car lines. Body is jet black, interior trim pink cowhide. Right front seat moves forward 11 inches for easier access to back.



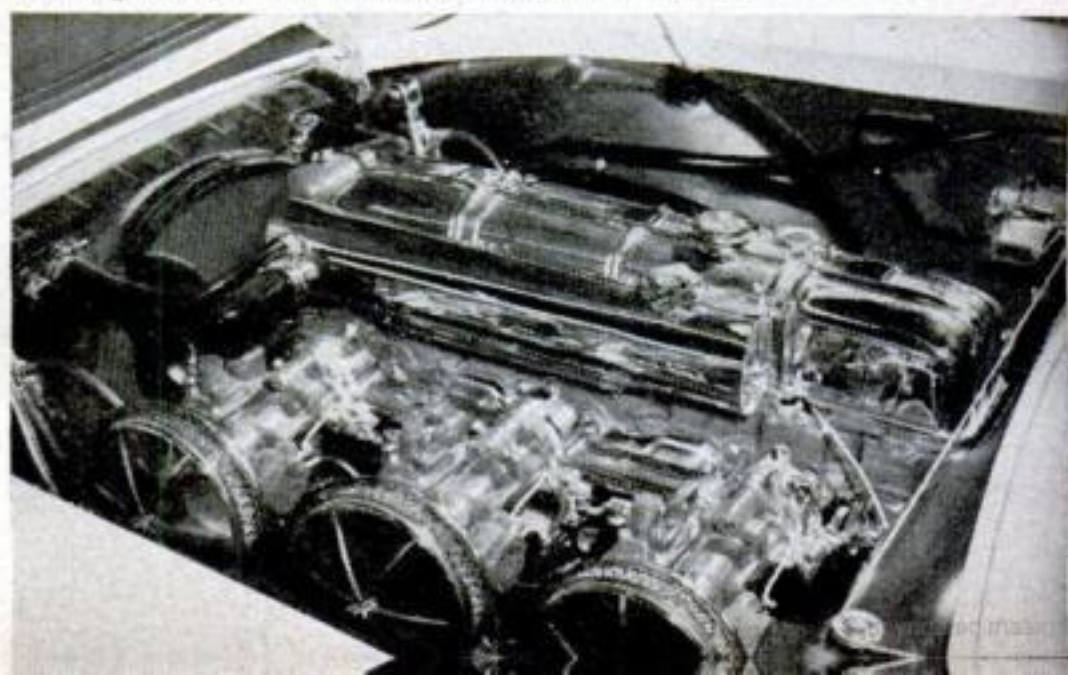
In best Continental tradition, Chevrolet sports

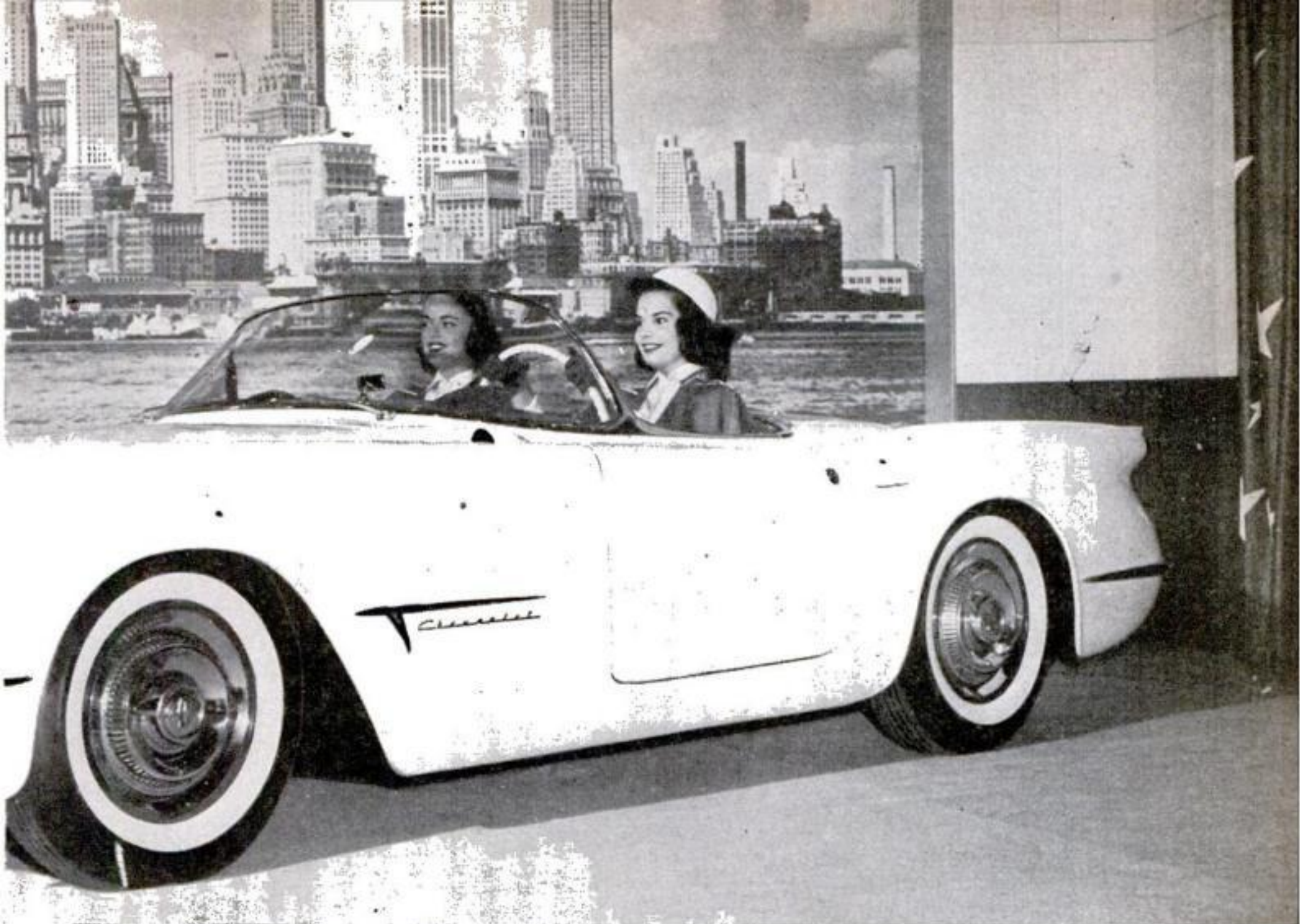
Chevrolet

DON'T look now, but Chevrolet probably will be producing a sports car in the near future.

Low-slung, packing 160 horsepower, an "experimental" Chevrolet with European lines is being exhibited at motor shows around the country. It will be put into pro-

THE CORVETTE, as Chevy calls it, has standard six-cylinder engine souped up to produce 160 horsepower. Three carburetors feed it.





car has flowing fender lines cut out to show all of the wheels. Notice lack of regular bumpers.

Shows Plastic Sports Car

duction, says the company, "if there's a demand for it"—and the demand so far has been astonishing.

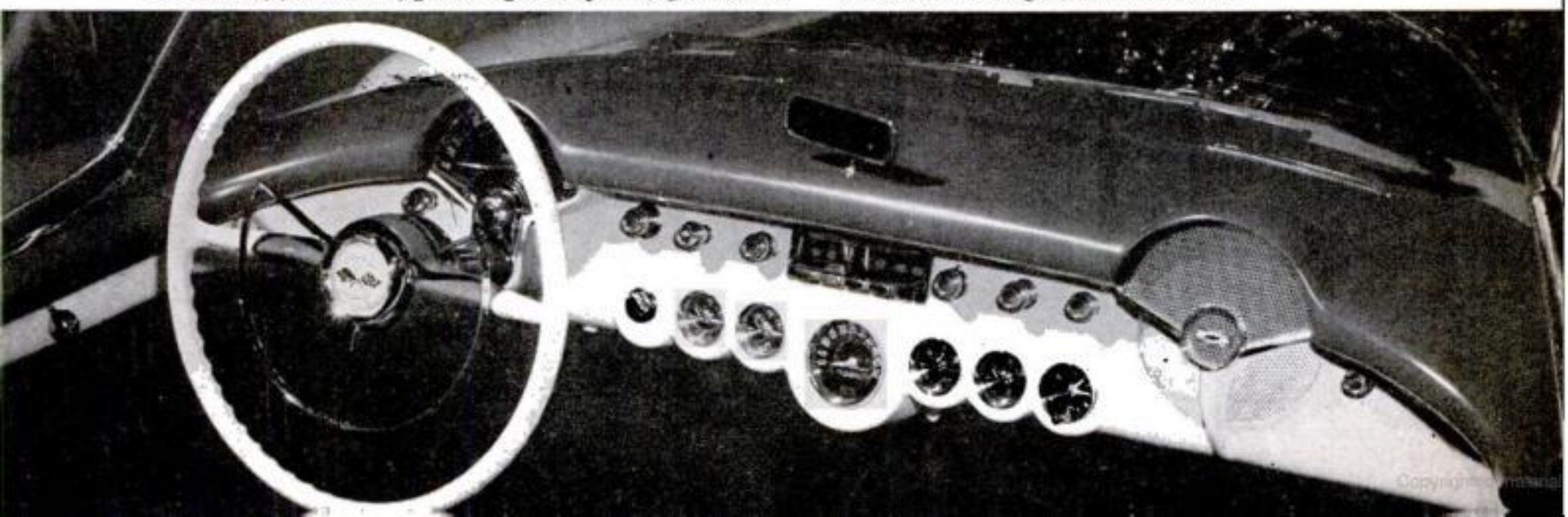
The Chevvy is one of five new experimental automobiles put on display by General Motors. The other four, built by Cadillac, Buick, Oldsmobile and Pontiac,

are shown in the left-hand panel on the facing page. All but the Pontiac have plastic bodies. None but the Chevvy has much chance of being produced for sale.

While Chevrolet has dodged all questions on price, the company is said to be aiming at "around \$3,000" for its sports car. **END**

THERE'S A TACHOMETER on the dashboard (large circular dial in center of photo below), naturally, and a typical sports job's gearshift

lever, pencil-high, placed between the two seats. Interior of the Corvette is trimmed in white and bright red leather.



Stamps Show World's Cars

PHILATELISTS who happen also to be auto enthusiasts treasure these stamps as collector's items. Issued by nations on both sides of the Atlantic—and of the Iron Curtain—they all have one thing in common; they depict some kind of automotive vehicle—fire engine, ambulance, bus, truck, jeep, horseless carriage or racing car.

In addition to the stamps shown here, other auto-commemorative issues have been printed by Romania, Bulgaria and Spanish Morocco (all three picturing trucks), China (a mail bus) and Italy (the annual Turin Auto Show).

Stamps courtesy *Ethyl News* and the AAA.



THE FIRST postage stamp picturing an auto was a four-center issued by the U.S. in 1901. The two men are driving past the Capitol in an electric car.



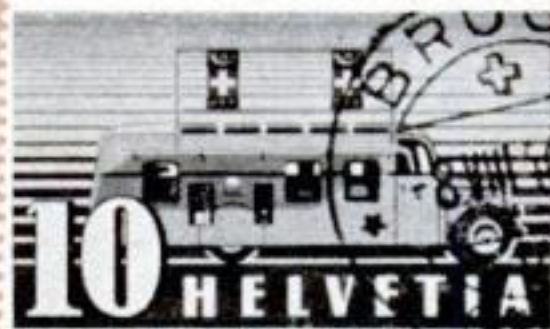
FINNISH STAMP features speeding ambulance. Finland has also paid postal tribute to the movement of mail by motor truck.



60-KOPEK RUSSIAN issue of 1941—the year Hitler invaded the USSR—salutes automobile production, and industry and aviation in addition.



ONE OF A SERIES, this Yugoslavian stamp was issued to commemorate the racing-car and cycle competitions which were held in Belgrade in 1939.



SWITZERLAND, like Finland, has issued stamps honoring the postal service itself. Above, a parcel-post carrier. Current U.S. Special Delivery stamps also feature a mail truck.



PANAMA issue of 1947 notes the 50th anniversary of the founding of the Colon Fire Department. Fire engine is American; stamp was printed in London.



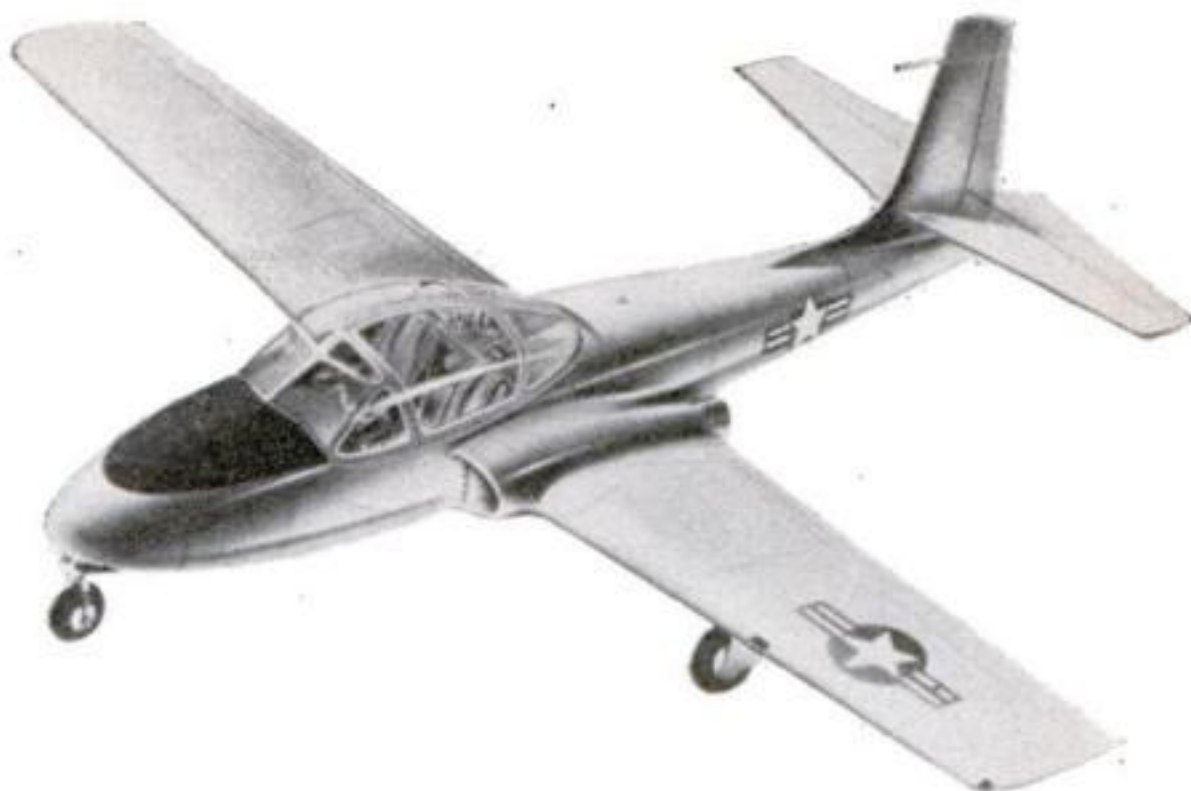
GERMANY issued a stamp series for the 1939 Berlin Auto Show. They ran the gamut from high-wheeled horseless carriages (above) to high-powered race cars.



THE UBIQUITOUS JEEP turned up on a 1945 Liberia issue showing President Roosevelt reviewing U.S. troops at Monrovia, Liberian capital, during his visit to Africa in 1943.

'Kindergarten' Jet to Train U. S. Pilots

U.S. AIR FORCE cadets will soon be flying twin jets in primary training. A contract has been awarded to Cessna for development of the all-metal, two-place job shown in the drawing at right. Powered by two 900-pound-thrust French turbojets built in the U.S., the plane will have a speed of more than 400 miles an hour. It is the first trainer-designed jet.



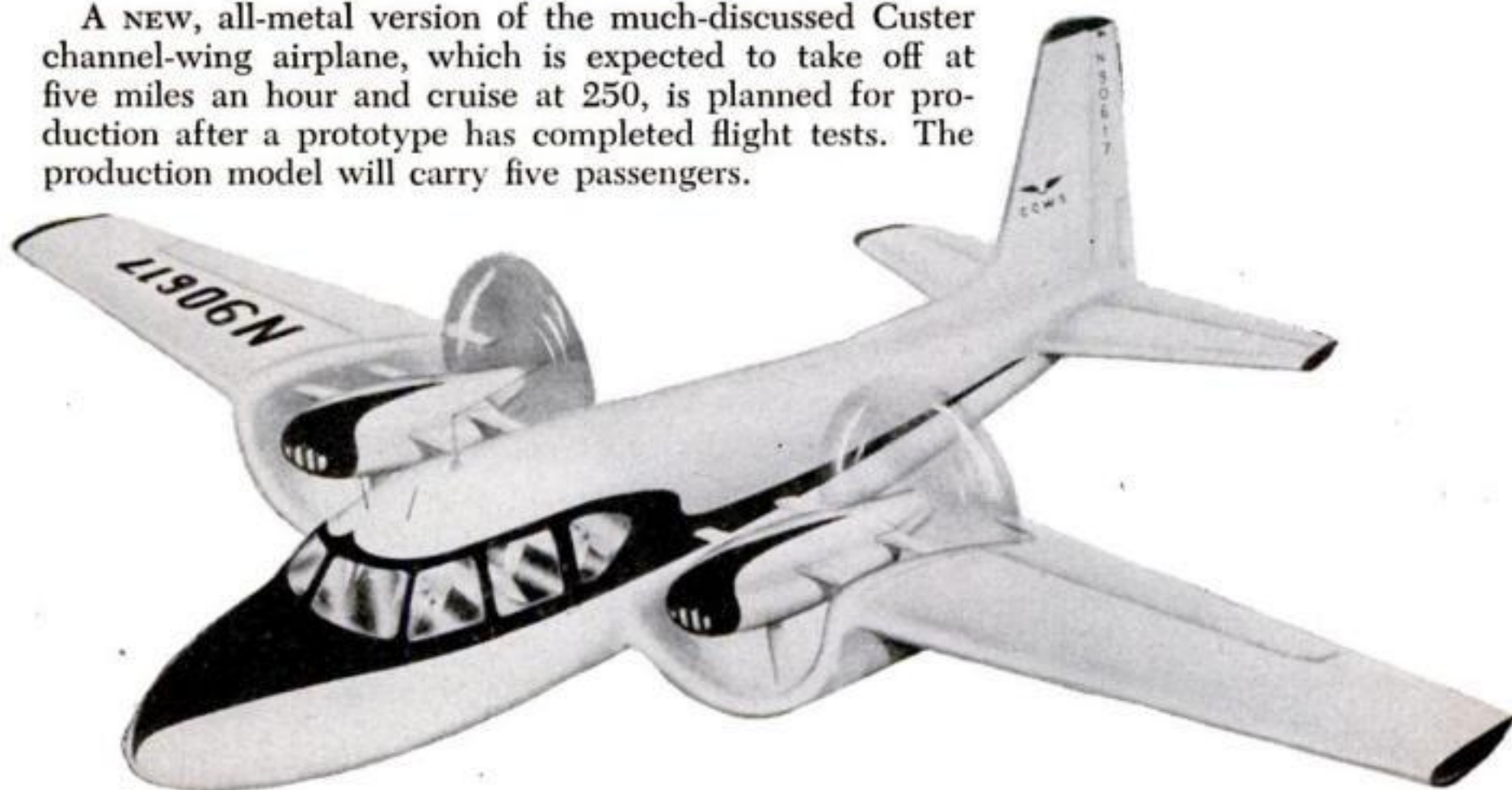
New Navy Plane Designed to Hunt Subs and Sink Them, Too

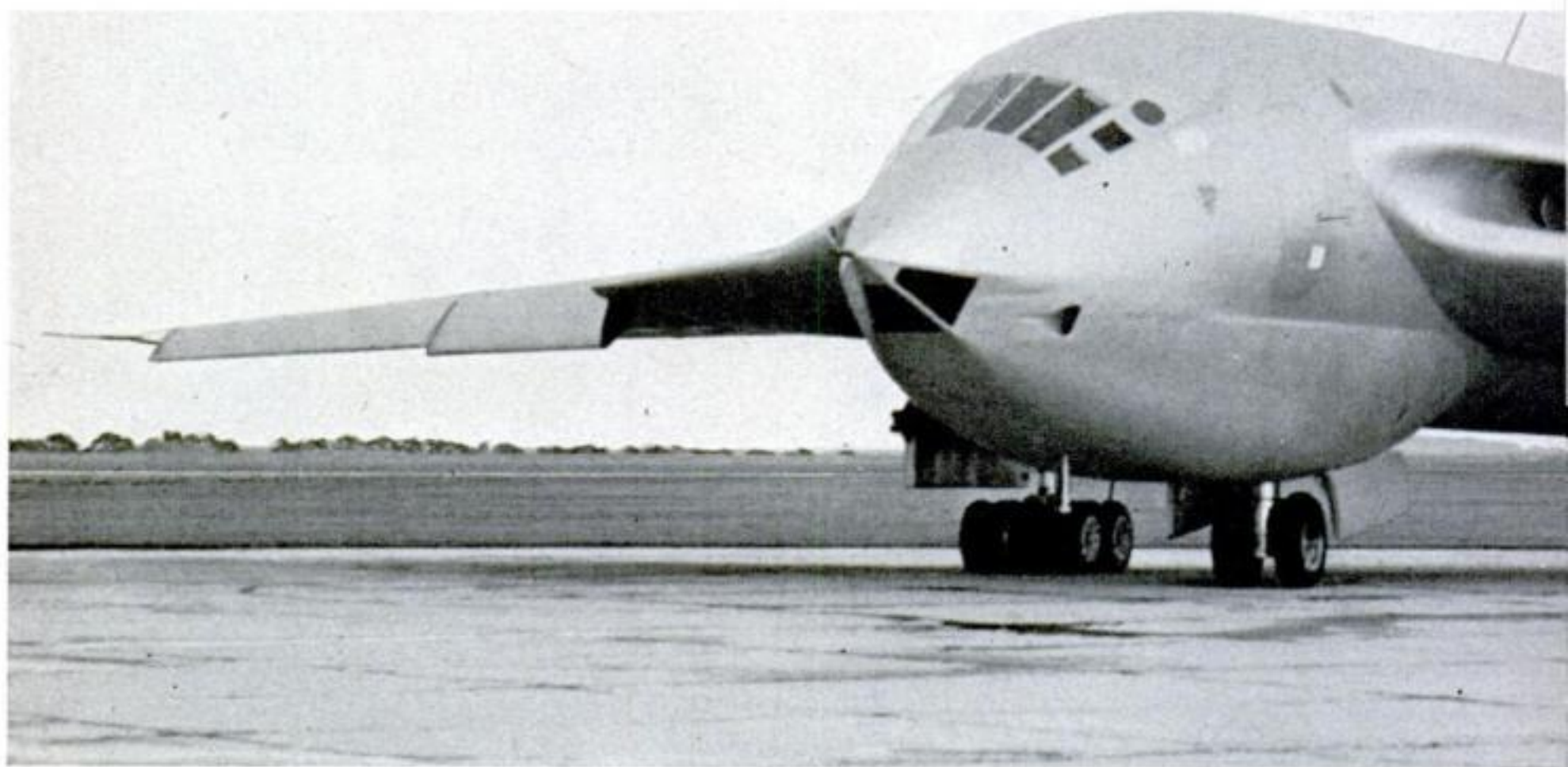
DOUBLE trouble is in store for hostile submarines when this new air weapon joins the fleet. It is the carrier-based Grumman S2F-1, which combines in one plane the dual

role of search and attack. At present a team of two planes is used for the job. The twin-engine plane has the latest electronic navigation and detection equipment.

Five-M.P.H. Take-Off Is Forecast for Channel-Wing Plane

A NEW, all-metal version of the much-discussed Custer channel-wing airplane, which is expected to take off at five miles an hour and cruise at 250, is planned for production after a prototype has completed flight tests. The production model will carry five passengers.

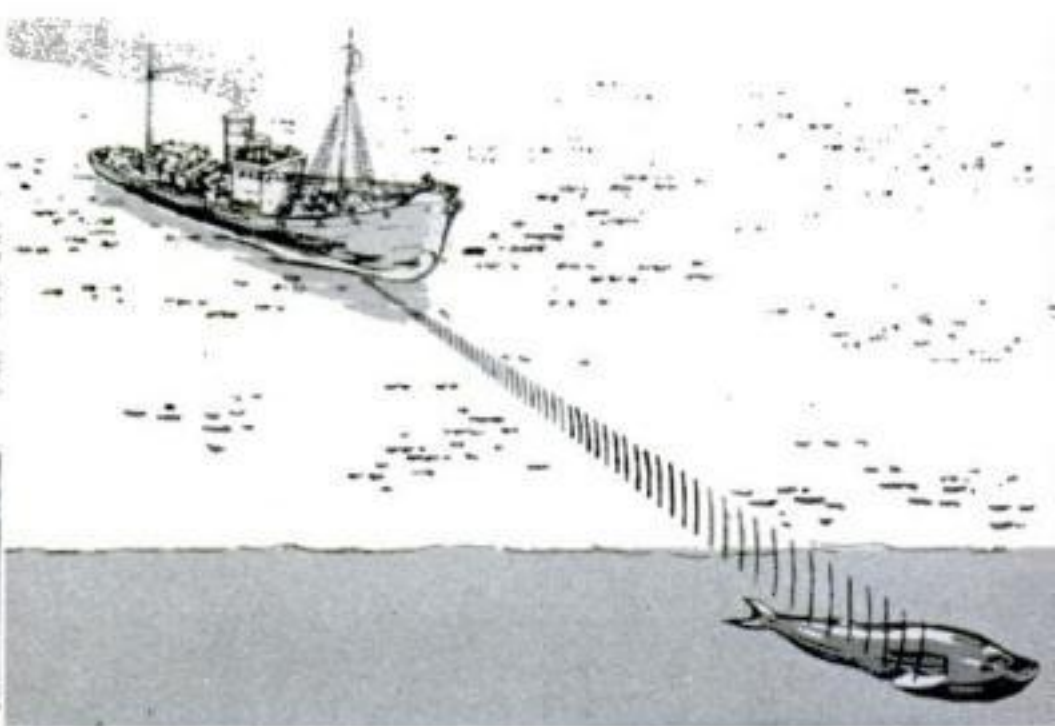
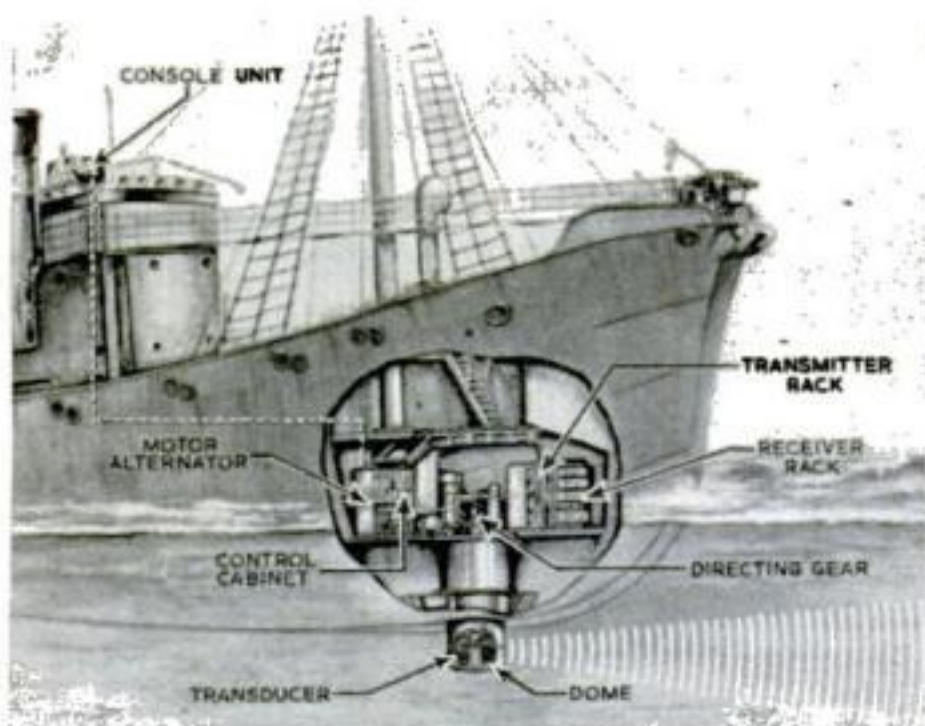




British Bomber Gets Brand-New Crescent Wing

B RITAIN'S latest bomber is this Handley Page 80, just off the secret list. Its four Sapphire jet engines, buried in a crescent-shaped wing, develop more power than 10 World War II heavy bombers. Speed is reported at around 600 miles an hour.

The new wing shape combines the merits



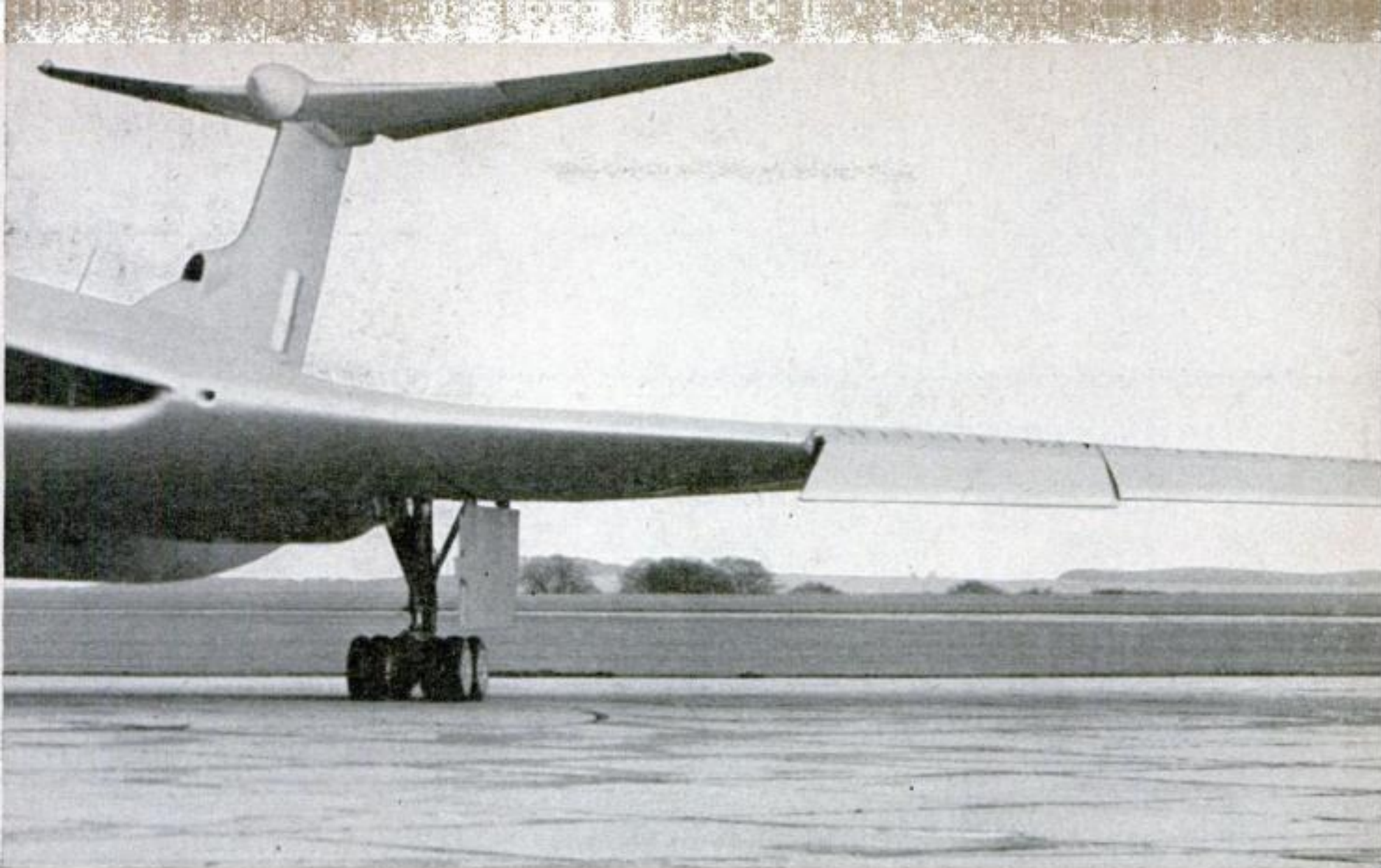
1953 Harpooner Gets a Break as Underwater "Radar" Spots Whales

FROM 11 whaling vessels in the antarctic this winter, searchlights of sound peered into the frigid water for the harpooners. These vessels have been fitted with sonic whale detectors (sketched above).

Here's how they work: As soon as the lookout on a ship sights a school of whales, a retractable dome lowers a transducer from the hull to fan out a beam of sound. A sub-

merged whale caught in the beam bounces back the sound. The time between transmission and echo, translated into distance at a console, pinpoints the target.

Similar sound-ranging systems—developed first to detect submarines—are widely used by commercial fishermen to locate their catch. The whale-fishing equipment was made by Kelvin & Hughes, Ltd., of England.



of the delta, the swept-back and the razor-thin straight wings, but adds a trick of its own. There is a sharp sweep back at the thickest sections close to the fuselage. Then it turns out again so that the thin tip sections are nearly at right angles to the line of flight. This shape is said to

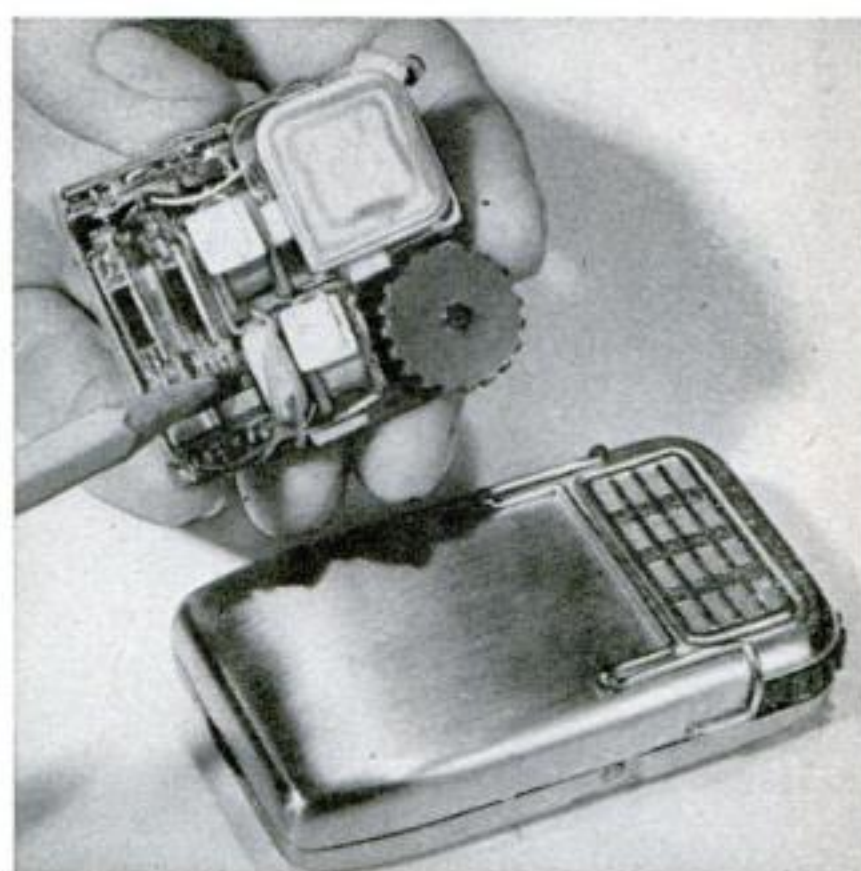
give greater maneuverability and stability at low speeds.

Two main undercarriages spread the bomber's weight over a large area to allow operation from runways of normal strength. Next Month: Popular Science will compare this bomber with the latest U. S. design.



Big Walls Put Up Fast

WALLS 28 feet high and six inches thick are shown above being crane-hoisted into place during tilt-wall construction of a United Air Lines base at San Francisco. Poured in molds at the site, the slabs of reinforced concrete weigh 19 tons each.



Transistor Put in Hearing Aid

THE transistor, tiny powerhouse of germanium in plastic, is used in the Sonotone hearing aid above. A pencil points out its location next to two miniature vacuum tubes. The transistor, adopted by several makes of hearing aids, reduces battery drain.

How to Watch

Roller Derby

Its sock-and-rock-'em mayhem on wheels is more spectacular than it is dangerous, thanks to sound rules and engineering.

By Charles McLendon

PSM PHOTOS BY W. W. MORRIS

MILLIONS of cash customers and free-loading TV fans go mad each year over an atavistic sport called Roller Derby. They believe that its sole purpose is to kill or maim tough-muscled young men and women mounted on flying two-inch wheels. This quaint outlook is pleasing to Promoter Leo Seltzer, because their blood quests will rack up about 5,000,000 paid admissions this season and a hefty revenue from telecasts.

It may surprise many TV-ites to learn that only one derby skater has been killed in the 18 years since Seltzer dreamed up the game while doodling on a Chicago restaurant napkin. The long-

range lenses of the TV cameras have been guilty of giving too narrow a view of a sport whose players are protected from serious injury by safety rules and a dazzling assortment of mechanical contrivances.

The TV-ite should also know that players are not hedgehogged with splinters when slammed against the track. Thanks to the most perfect racecourse ever built, the indestructible women who tussle in sock-and-rock-'em violence may safely wear earrings, eyeglasses and hair ribbons.

Slams Are Needed to Score

Roller Derby is the toughest sport in which women compete for scoring points on an equal basis with men. But it is no

“Jams” Are the Essence of Roller Derby—



JAM STARTS on signal of referee's whistle as two players from each team take alternate positions at head of “pack.” Lead “jammer” is New York Chiefs' Mary Ciofano.

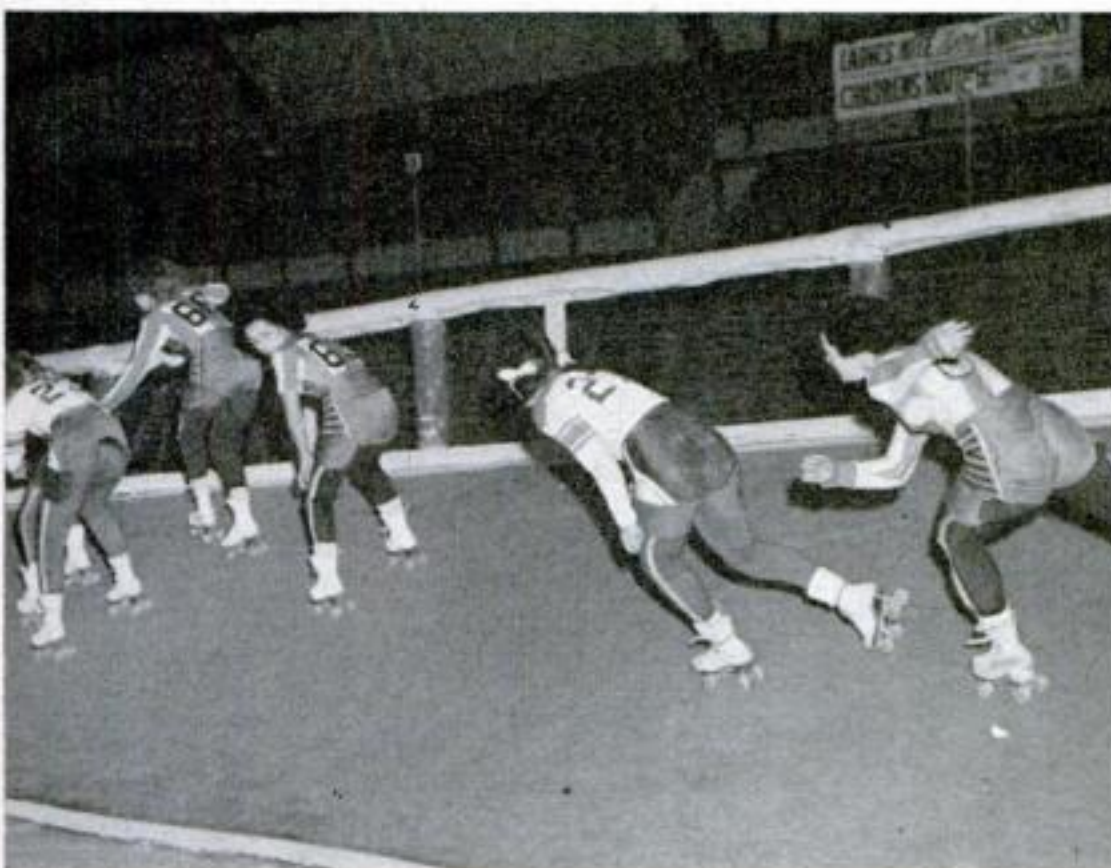


BREAKAWAY. Chiefs' Mary Lou Palermo (in pigtails) and Jersey Jolters' Julie Patrick are in the clear. They will try to gain a lap on other skaters.



Knockdown by Chiefs' teammates is good for two points by scoring ace Spec Saunders.

90 Seconds or Less of Dizzily Angled Action



CRUCIAL MOMENT. Approaching pack from rear, both jammers are in position to score. Jean Porter has dropped to defense spot for the Jolters, will try to block Palermo.



PAYOFF. Knocked to the rail by Chiefs' Ciofano and McGrath, a Jersey Jolter is passed by Mary Lou to rack up one point. Passing whole opposing team scores five.

more rugged than football, ice hockey, wrestling or six-day bicycle racing, from which it borrows its most violent features.

The rules are as strict as in basketball. But the fact that no player may score without slamming opponents a dozen times or more in a single play makes Roller Derby one of the most spectacular sports ever devised.

Scoring points result from 90-second

holocausts called "jams." An evening's game, divided into eight 12-minute periods, may provoke as many as 40 of these spirited forays and several bone-jerking spills. Five men and five women are a team, with the ladies taking over every other period.

At the shrill of a referee's whistle the 90-second clock starts, and one or two players from each team break out of the

Fair Play or Penalty? These Are Legal



TWO-MINUTE PENALTY results from illegal elbow block, above, demonstrated by Spec Saunders and Jersey Jolters' Hal Janowitz. To make this violence legal, the elbow must be swung below opponent's shoulder, as shown below. Midriff jabs are breath-taking.



SERIOUS INJURY to groin, stomach or chin outlaws leg block with bent knee (above). Spec tries the maneuver again (below) in the manner approved by the referees. A straightened leg sends Jolters' Lou Proto spinning to the hardboard floor.



formation in an attempt to gain a lap, crash into the back of the pack and pass as many opposing players as possible. Getting by one opponent is good for one point; passing an entire team, five points. Score-seeking skaters are called "jam-mers," and the one out in front is the "leading jammer."

The only effective offense or defense is to knock an opponent out of control,

and Illegal "Blocks"



LOCKING ELBOWS in a double block (above) can put both defensive players in the penalty box, increasing scoring chances of the opposition. Or two points may be awarded blocked player. Below, Jolters' Marchese and Janowitz observe the legal niceties.



OOPS! That, my dear, was a hip block, considered essential as a primary offensive and defensive measure. The Jersey Jolter owes her instability to Mary Lou Palermo.

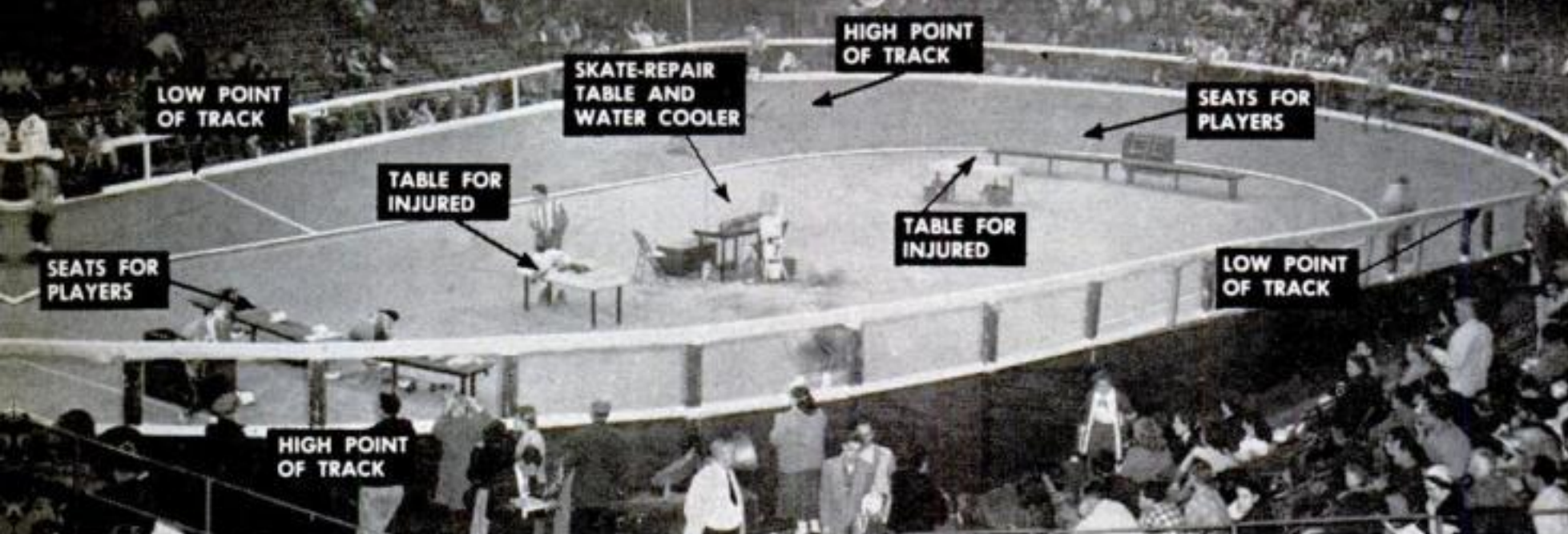


PHONY? TV cynics think so, but most hair-pulling is authentic. Here, former Chiefs' star Gerry Murray exchanges a scalp treatment with Red Devils' Toughy Brasuhn.



SIMMERING. The normally quiet demeanor of Mary Lou Palermo has just been ruffled by a real or imagined wrong, and she's speaking her piece from the penalty box.

Bedlam's Bowl: It's Smaller Than You Think



TV gives Indianapolis-Speedway look to Derby tracks. Actually they measure 128 by 70 feet.



TRACK CAN BE SET UP or knocked down in four hours. Skating surface is 12 feet wide, with 23-degree end banking. Masonite, on a $\frac{3}{4}$ -inch plywood base, provides "bounce."



SISSY REFINEMENT which has made Derby healthier for players without reducing the showiness of the game is one-inch, sponge-rubber padding on the guard rails.

Roller Derby's Superstitious Cinderella Wears

DERBYITES ARE AS SUPERSTITIOUS about their skates as baseball players are about lucky bats and gloves. Sensational young star Mary Lou Palermo is no exception. Toe-braking has torn the leather from her shoes, but she won't give up the battered brogans.

NOBODY TOUCHES her magic skates but Mary Lou herself. An artist with the abrasive wheel, she grinds down a new set of wheels, then removes a couple of ball bearings and adjusts the axle-bearing keeper loosely. She thinks slight friction improves control.





Point-gaining "whip" boosts speed of jammer from 35 miles an hour up to a dazzling 45.

onto the floor or over the rail. A leading girl jammer who scores a few points by slamming opposition players helplessly against the rail receives cheering homage from an audience which is 65-percent women. Both male and female contestants wear tights padded about the knees

and thighs, and the girls fill the seats of their shorts with sponge rubber. Seltzer supplies all players with tough plastic helmets, which are usually discarded.

Players Accept Injuries

Nearly all skaters admit to a long list of painful injuries, but laugh them off, maintaining that they are an acceptable hazard of the sport. Playing part of a game with chip fractures in both shoulders and one ankle, Mary Lou Palermo, a star of the New York Chiefs, cried because her blocks lacked punch.

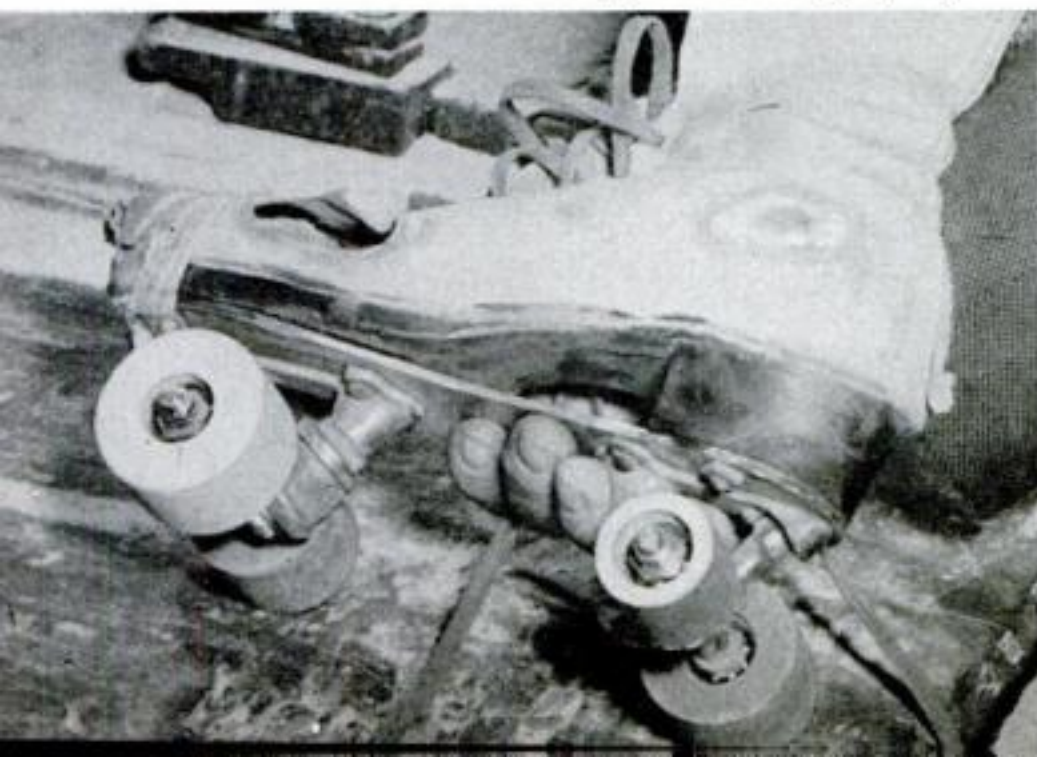
None of today's Derbyites will wear the number 1. They consider it bad luck, remembering a day in the late Thirties when Stewart Erwin, carrying an eight-inch 1 on his back, was killed in a fall against the inside edge of the track, which had been elevated six inches above the arena floor. This hazard was eliminated the next day by lowering the track to the floor.

Practical experience, never again so

[Continued on page 276]

These Shabby Skates

FOR DEMONSTRATION ONLY. New two-inch wheels (left) make most players feel they are on stilts, so they grind them down to 1½-inch diameter. The whirling maple discs last about a month—16 games—traveling 200 miles before becoming nubbins (right).



P.S.

Last minute news & notes...

SKIDDING may be prevented when buses and trucks stop quickly by a device being developed by Goodyear. Similar to a system in use on aircraft and passenger trains, it senses when a wheel is about to lock and slide, eases off on braking pressure enough to keep the wheel rolling.

ENGLISH VIDEO FANS are eventually to be rid of interference from cars. Static-preventing suppressors will be compulsory on all new autos, motorcycles and motorboats sold there after July 1.

A MILLING MACHINE run by an electronic brain at MIT is turning out one complicated jet-plane part every four minutes. It took human operators 30 hours to make the same piece.

ANCIENT ROMAN RUINS in Britain may yield a secret that will help keep iron and steel from rusting. Excavations in York have revealed 2,000-year-old knives and hobnails in perfect condition. Government scientists believe that tannin in the soil may have prevented corrosion.

MORE THAN 400 TIMES AS FAST as the lens of a box Brownie (about f/16) is an f/0.75 movie-camera lens designed by Kodak. Its almost incredible light-gathering power, close to the theoretical optical limit of f/0.5, is intended for "cine-fluorography"--making motion pictures of the faint images on fluorescent screens.

WEEK-END PAINTING becomes easier with a wall primer that dries in 45 minutes to two hours, after which a flat wall finish may be applied. It is a water emulsion of polyvinyl acetate and has no odor, du Pont reports.

A SWITCH ON HYDRA-MATIC TRANSMISSIONS is provided in Rolls-Royces shortly to be seen in the U.S. Instead of the dual range provided in American cars, the motorist has three quadrant settings to select from. The lowest allows one gear up shift; the second, two; the third, three.

SOLAR-ENERGY CONVERSION and photosynthesis, the process by which plants harness sunlight to manufacture food, will occupy researchers in a great new laboratory to be completed this year at Yellow Springs, Ohio, by The Charles F. Kettering Foundation.

COLD RUBBER, modern triumph of synthetic chemistry, can now be made in 15 to 20 minutes instead of the 10 to 12 hours currently required. The new Goodrich process will permit continuous production in stainless-steel pipes--instead of by batches in expensive pressure vessels.

FRIDAY THE 13TH--there's one this month--is luckier for motorists than Saturday the 14th, says the National Safety Council. More accidents occur on the latter date, it points out, simply because there's more traffic on a Saturday. Last year, 21 percent of all fatal motor accidents were on Saturdays, Sundays running a close second.

FLOWER PATTERNS resembling Christmas poinsettias, seen in samples of Diesel fuel oil under an electron microscope, warn Denver & Rio Grande Western Railroad men of trouble--unless a chemical called a dispersant is added before use. Otherwise, gummed-up piston rings and lacquered cylinders will result. Predicting how Diesel oils will behave by patterns of spots, an RCA table-model electron microscope has enabled the railroad to avert locomotive repairs, reduce smoke and cut fuel bills.

SNAKEBITE-PROOF TROUSERS for hunters and campers have heavy canvas legs with detachable linings of lightweight, flexible Monel-metal wire cloth. The maker, Gokey Co. of St. Paul, says they are impenetrable to snakes' fangs.

The Editors

Now's the Easy Time to

Spruce Up Your Home



***If you look at window screens now,
you'll have plenty of time
to look at a TV screen this summer.***

By Bernard Gladstone

I GUESS that I took the pledge on house repairs on that warm June day two years ago when the Cardinals were at Ebbets Field. I was sprawled out on the lawn listening to the game on the radio.

The Dodgers were up in the last half of

the ninth, the score was one-all, and there were none down and the bases loaded. Robinson had singled, and Ted Wilks had walked Snider and Gil Hodges.

"Here's the pitch—" said the announcer. At that point the missis called from the doorway. "Dear," she said, "when are you going to mend the screens? The wire on one—"

"—and there," yelled the announcer, "goes the ball game!"

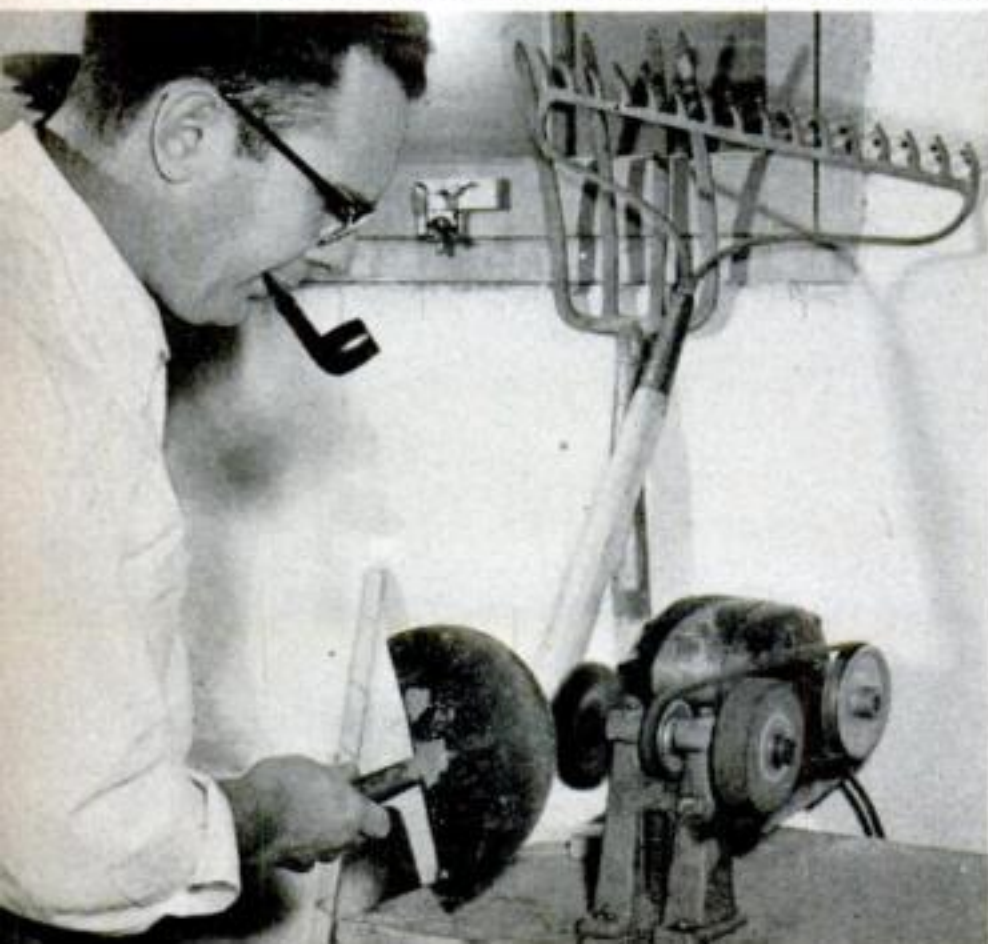
Well, what can a man do? I got up off the lawn and went to work on the screens. The only way to whip this problem is to get the house fixed up before the pennant races start to get interesting. I've found a formula, and I'm going to explain how it works.

Take a spring examination of your shingles, for instance. Most homeowners put that off because they make too much work of it. I've simplified it. On the first warm day I look over my roof from the ground.



IF YOU WANT TO SIT DOWN when summer comes, better start fixing the chairs now. A coat of paint and new canvas seats, an easy tack-on job, make lawn furniture like new.

SHARP TOOLS work faster than dull ones. Grind or file a keen edge on hoes, shears, edgers and other cutting tools and you'll spend less time in the garden. Oil helps, too.



It doesn't take 20-20 vision to spot a raised shingle. I supplement that with a quick trip through the attic. Any dripping that has developed during the winter is obvious.

In the garden-tool department I make quick work of pruning shears, turf edgers and the like. They're already clean, for one thing. I put them away in the fall only after I've gone over them with a wire wheel or steel wool to remove caked dirt and rust.

Keep Tools Sharp

The short cut is in sharpening them. The only part of a garden tool that does any work is the cutting edge. So I limit my labor to sharpening the edges with a flat file or grindstone. I don't knock myself out, either. Shovels, edgers and hoes don't have to be razor-sharp.

To tighten up the rivets on the wooden handles on shovels, rakes and other long-handled tools, lay them across the anvil of your metal vise and whack them with a hammer. That's only a 10-minute job between supper and the Milton Berle show.

This month—March—is the time to lubricate your wheelbarrow, spreader, sprinkler, lawn mower and other pieces of equipment with moving parts.

Get yourself a chair and a low table to work on. Use a trigger-type pressure oil can. It's easier. And *don't* use lightweight oils and greases. The heavier weights last the whole season.

It's a good idea to give all your equipment a coat of enamel to protect it.

I advise fixing the lawn and patio furniture before the exhibition games start. Some of them are bound to be on TV.

Wives Are Handy

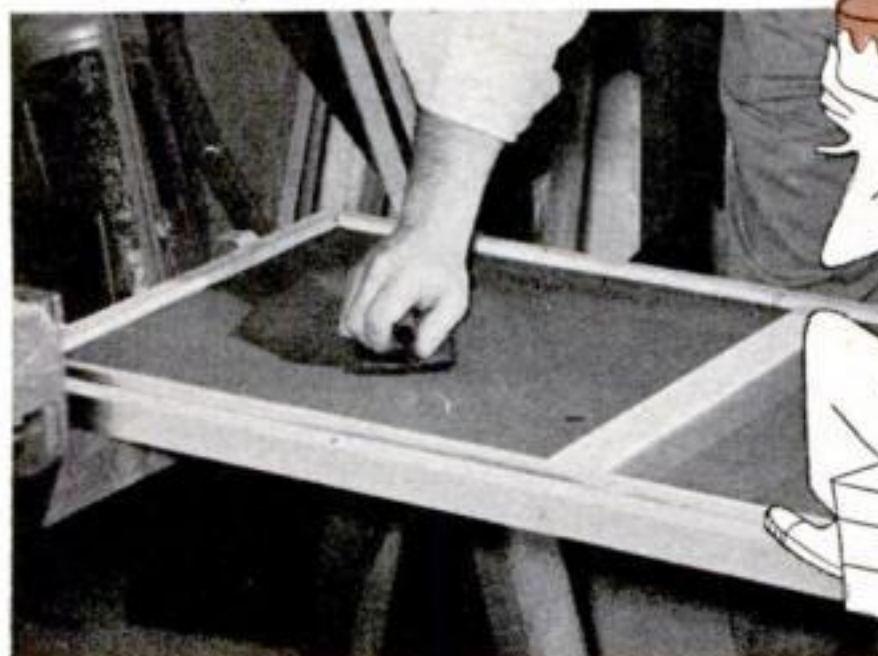
First, wash the stuff down. Once the items are clean and dry, paint them. I do all my painting with a spray bomb. It's a lot faster.

If you have to do any gluing, use the ready-mixed kind. If you have to do any sewing, use your wife. Paint will do wonders for old canvas. And repairs don't necessarily mean removing the old material. Lots of times you can tack a new piece right over the old. And use a stapling gun. It's a great labor saver.

Natural-wood furniture should be protected with a coat of penetrating sealer. The easiest way to apply this is with a boy around the age of 10. When they're older a quarter of a dollar doesn't look so big to



A NEW COAT OF PAINT on shutters and window trim may be all you need to tidy up on the outside. You can do the house itself later, a wall at a time, and the job won't seem so big.



CLEAN SCREENS mean no rust, which means no holes, which means no bugs, which means you won't have to turn off the Dodgers to dodge flies. Use a screen painter—carpet on a block.

them. This same labor-saving arrangement can be used in applying spar varnish to rattan and wicker stuff and paste wax on aluminum furniture.

Now, as for those summer screens, there *are* short cuts there, too. The easiest way of dusting off the wire is to lay the screens flat across two horses and rub them with a screen painter. This is a wood block or metal plate with a piece of carpet fastened to the bottom.

Corners of the screens that are loose can be fixed with metal corner braces. Screens with more than two weak corners should be thrown away. They're beyond repair.

If the wire mesh is badly corroded or torn, replace it with plastic or metal that doesn't have to be painted. If you must paint screening, use a spray bomb.

If rust from old wire is staining the wood frame, lay the screen flat, remove the moldings and give the screen two coats of spar varnish or a special screen enamel. Then replace the moldings, countersinking your nails, and fill the holes with putty.

**The easy way
to varnish
wicker furniture...**



**...is with a
boy of 10.**

Remember that if you use a special sash paint on the wood, it leaves a hard, enamel-like finish that will last for four or five years. Remember, too, that it's a perfectly acceptable practice to paint the outsides of your frames this year and the insides next year.

Beat the Heat and Bugs

Ever fight gnats while you were painting your house? I've whipped that one. I beat them by a couple of months. Do your painting in the shade, too. Watch the way the sun travels around the house and plan your painting during those hours when the part you tackle is shaded.

Don't try to work when the temperature is below 50°. The paint won't set properly. Nor should paint go on a hot surface.

Most house paints today are designed to start chalking off after a year. This is particularly true of white paints. A microscopic film of chalked paint is washed off each time it rains, carrying dirt with it. This cleansing action is sometimes retarded on areas not evenly exposed. Play a hose

Three Ways You Can Free Tight or Jammed Windows



DRIVE AX HEAD into crack between bottom of window and window sill from outside of house. Tap gently and move tool along window to avoid marring it.



IF WINDOW BINDS, tap wood block against molding strip to shift it slightly outward and widen track. Scrape off any excess paint that might stick sash.



SPECIAL PRY is tapped into crack between casing and sash, then moved back and forth or twisted to free window. Work tool all around sash if jam is bad.

on such areas. Use a long-handled brush with the hose for difficult spots.

Do your painting in sections, one side of the house at a time. Start with the most noticeable side and let the balance go until next season. If you paint your house by bits and pieces, the maintenance really works. The paint doesn't get thin everywhere at once.

You can do a lot for appearance just by touching up. The whole front of the house can be brightened with a little trim and trellis paint on the front door, garage door and maybe the downstairs shutters.

Take off the hardware and polish it with fine steel wool or on a buffing wheel. Give the hardware two coats of clear lacquer before replacing it.

Don't wait for the first scorcher to discover that half the windows in the house are stuck closed from lack of use. You'll be sweating inside while you're sweating out an afternoon's job of unsticking them. Make a window-by-window inspection now so that you'll be sure they'll open when you want them to. This is also a good time to check your sash cords and replace any that are worn or broken.

Sure Way to Miss a Game

If you time your attention to the heating system until the games start, you'll find that lubricating the oil-burner motor and blower takes just about nine innings.

If you have a circulating-hot-water system, don't forget that pump motor. If you have a separate hot-water heater, turn off the burner switch when you no longer need heat. Adjust the Aquastat to the summer setting. Change the air filters if you have a warm-air heating system. That will give you clean, cool air from your basement for the upstairs when the weather gets hot.

Oil your fans. Use No. 20 oil. You can get them dusted by setting them out on the kitchen table. Your wife won't go by them more than six or eight times before she begins making passes at them with a cloth.

Don't forget your exhaust fan. Make sure the belt hasn't rotted or stretched. Tighten the bolts.

Finally, there's the attic insulation. If you haven't insulated, you're losing heat in the winter and sacrificing a cooler house in the summer.

Next August you want to watch those Saturday afternoon games on TV in comfort, don't you?

END

Everybody's Building Kit Boats

From big, fast cruisers down to prams, you can get almost any boat you want in kit form.

"THE only place I had to build it," says Kenneth George of Joliet, Ill., shown at right lowering his 12' Custom Craft skiff, "was in the spare room of my upstairs apartment."

George had foreseen that his finished boat would have to come down a ladder. In the case of another enthusiastic builder, who constructed his craft in the living room, a picture window had to be removed to allow launching. He, too, reported he saw beforehand that this would be necessary. But it stands as likely that at least *one* of the thousands of kit boats assembled by amateurs in recent years has been trapped in the basement, restricted to cruises between the furnace and the preserve closet.

The boom in kit boats is reflected by a record 3,250,000 outboard motors now churning U.S. waters, with more than 2,645,000 of these sold since the end of the war. Not that all prefab boats are outboards. You can buy a kit nowadays for anything from paddle-powered kayaks to sleek Diesel-driven express cruisers.

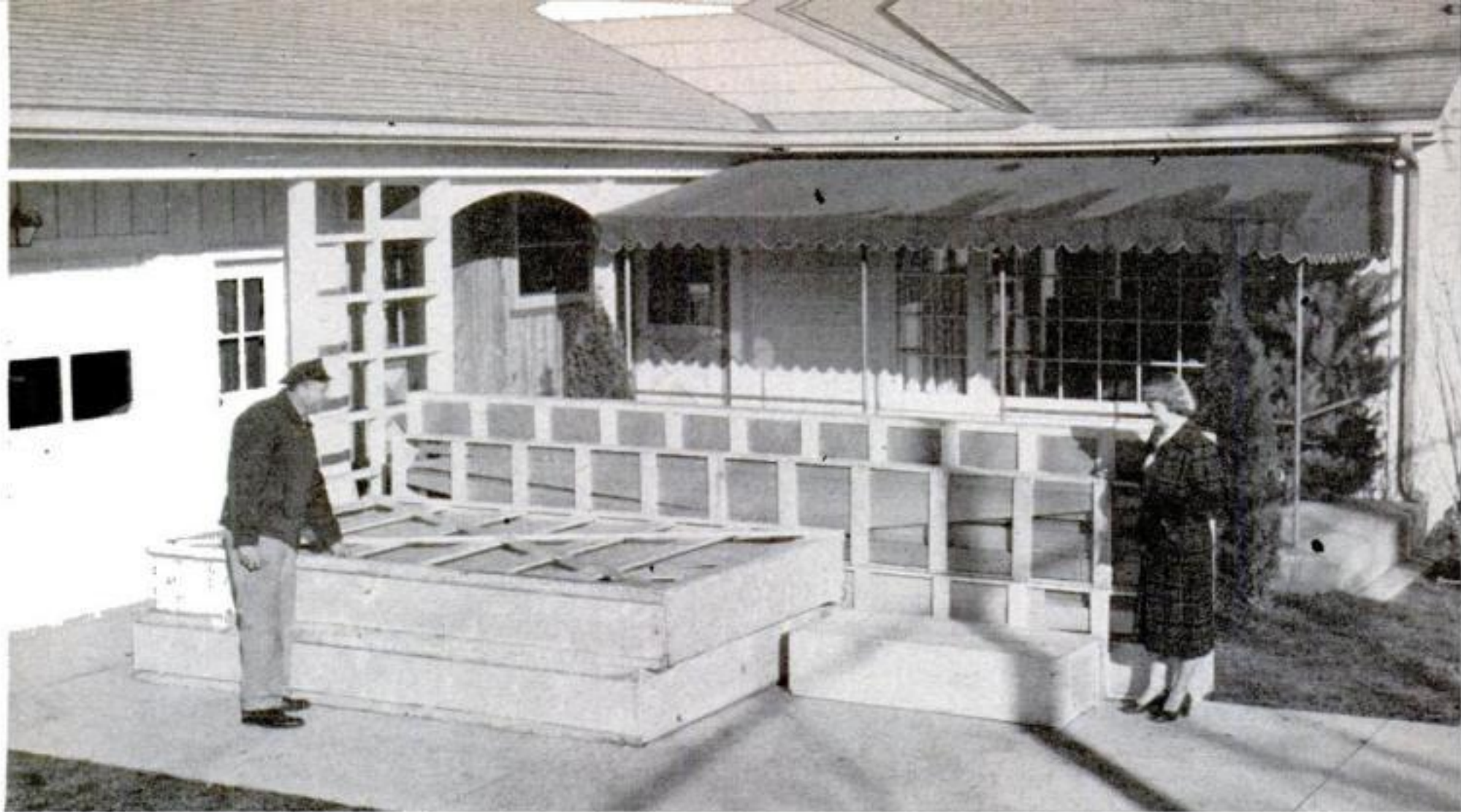
The bulk of kit sales are for kicker-driven craft less than 20' long, though, and the bulk of the buyers are strictly amateurs, both as builders and boatmen. If the idea of joining this crew tempts you, here's what it is like to build from a kit:



What do you save? The going price of a finished boat can be sliced roughly in half if you assemble it yourself. This assumes, of course, that you don't charge yourself for labor and that you don't incur such extra expenses as buying costly new tools or renting space in a neighbor's garage.

The saving often represents the difference between a boat or none. It is entirely possible for a deft (perhaps lucky) person to buy a kit, build and enjoy the boat for a season or two, and then sell it for more than the kit cost. But don't count on that.

How long does it take? Some little prams and dinghies, their manufacturers quite reasonably claim, can be built in an easy weekend. There are also big cruiser kits on which hull assembly alone can run well over 100 hours—with many, many more hours needed for engine installation, cabin, fittings and painting. Much depends on whether you're a slap-it-together builder,



a loving-care craftsman or something between.

As a rough guide, however, it is probable that if you choose a 14' or 16' outboard boat, and put in fairly solid week ends and some evenings, you can have it afloat in about a month of spare time, possibly less.

How hard is it? Kit boats have been successfully assembled by women, youngsters, and men who shy at building plain bookcases. The job has given a lot of convinced all-thumbs people new respect for their unrealized ability. Not that assembly can't be botched. It takes patience at doping out the manufacturer's intent, care at fitting and fastening so that the hull lines are fair, and the labor that goes into any important finishing and painting task. If you're uncertain about your woodworking, start with a simple, quickly assembled craft and save that cruiser until later.

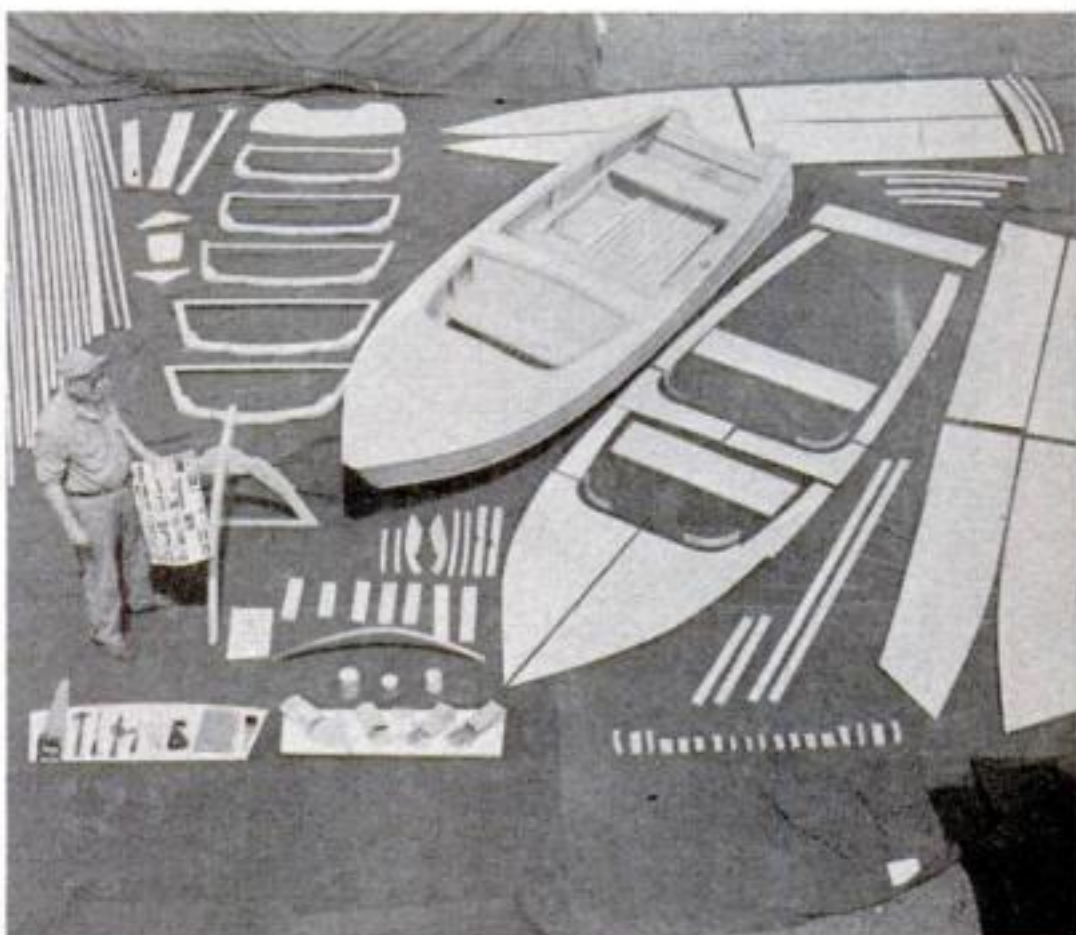
In assessing your ability, ponder whether you want to buy a completely prefabricated kit or one in which the parts are just precut. The first costs a bit more but goes together faster and more surely for the novice. The precut kit comes with stem, frames and other tough parts done but with planking and some other sections in need of final trimming and beveling. While this saves you money, it's also more work.

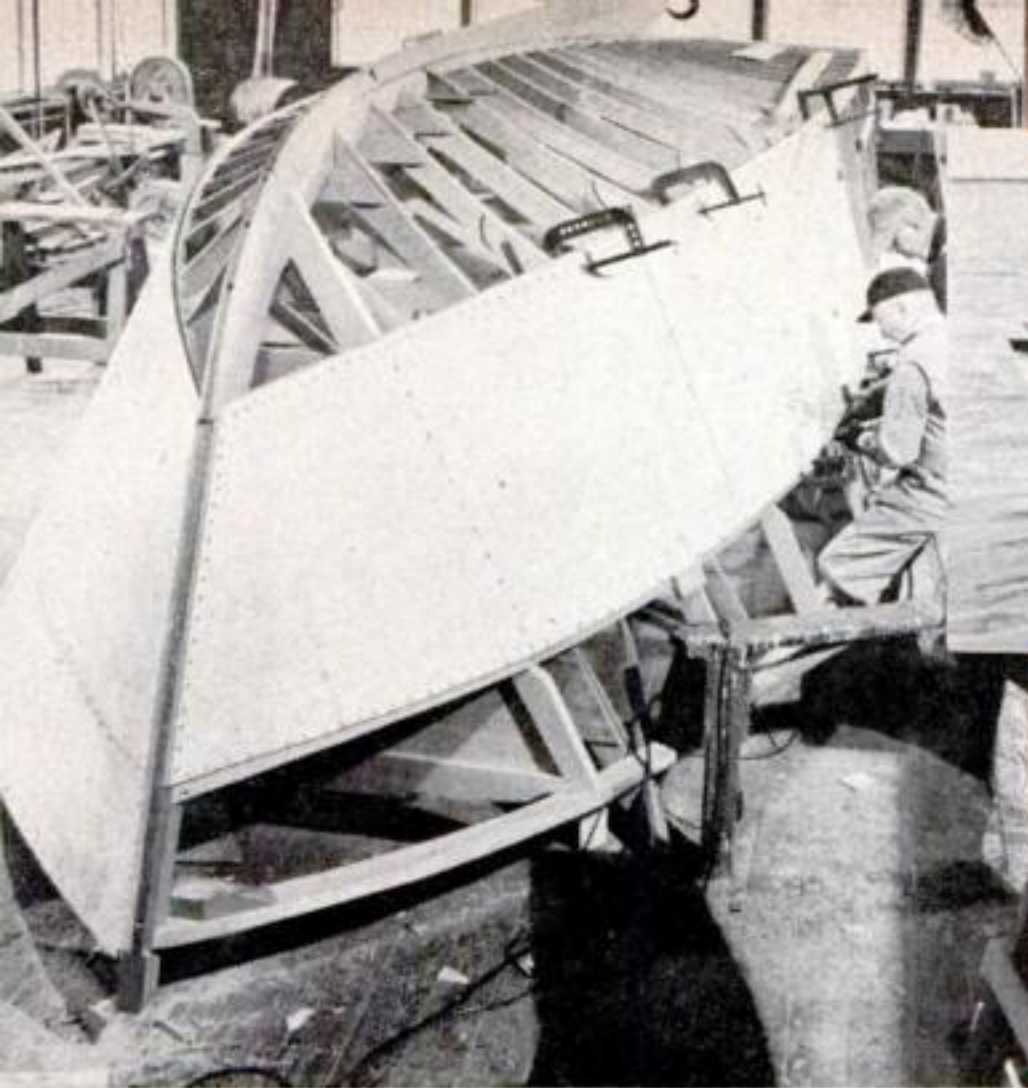
What tools? For years the bandsaw has been the classic power tool for a boat builder—but no longer. With a kit, bandsawing has all been done at the factory. Kit manufacturers say that their products

can be built with just ordinary home tools like a saw, hand drill and screwdriver.

Although this is true, there *are* some other tools—not uncommon ones, either—that are worth their weight in sweat. A good $\frac{1}{4}$ " electric drill with a combined drill bit and countersink is a big help. So is a spiral-drive screwdriver. You'll also be helped by screwdriver blades for your bit brace. An accurate level, a good try square, and sharp saws, planes and chisels will be invaluable. It is almost impossible to have too many C clamps. When finishing time comes, a husky portable power sander helps a lot.

What are the headaches? Most kit





BIG KIT in driveway at far left contains knocked-down hull for 31' Chris-Craft express cruiser. Hull kit costs around \$1,500, weighs more than 1½ tons. Cabin, windshield and flooring come in a second kit, for about \$500. Finished cruiser has 10' beam amidships and a double-planked bottom. Single or twin inboards drive it.

makers have taken elaborate pains to spare their customers from headaches or disappointment. Experience suggests, though, that beginners should watch out for these pitfalls:

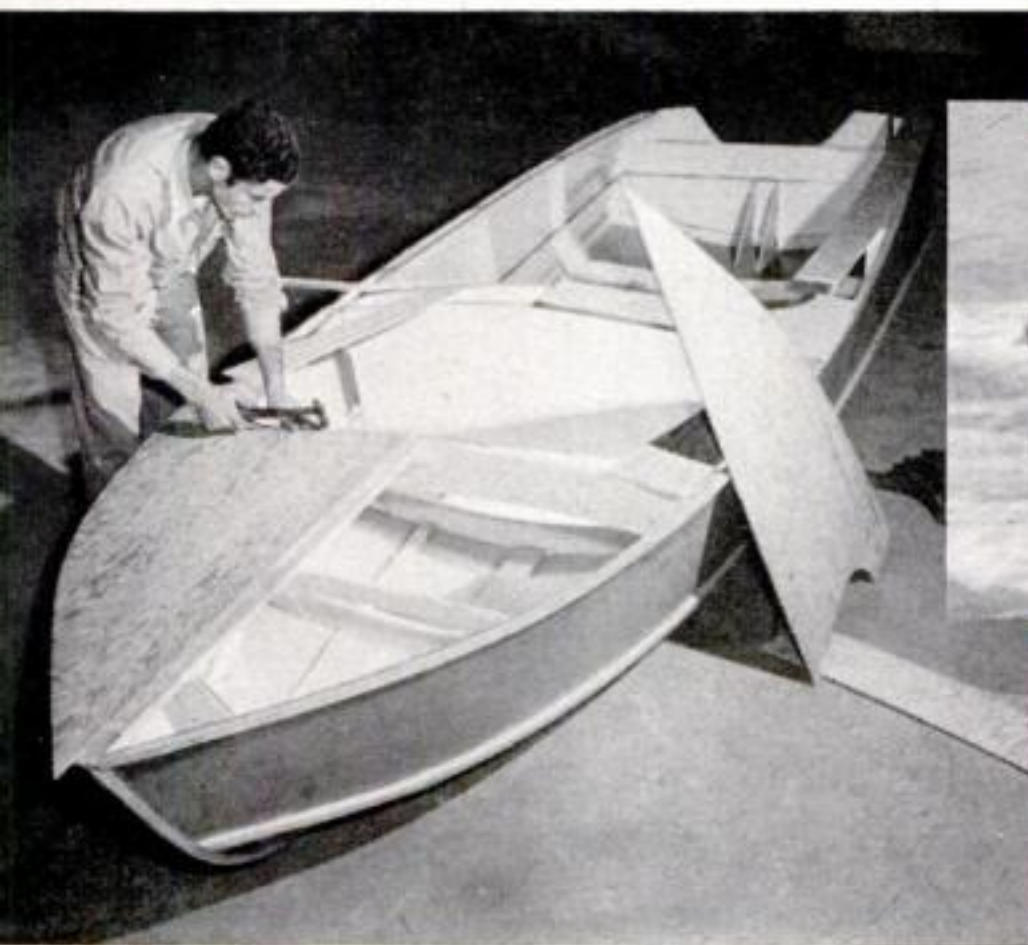
- *Uneven building floor.* A boat will only be as fair and true as the surface on which it is built. If the floor isn't flat and level, it's worth making a special platform frame that is. Some kits are shipped in crates designed to be used as building frames.

- *Hasty cutting.* Often a part that doesn't quite seem to fit will tempt you to grab up a tool and whack it down to size. But if you are working from a good kit, be hesi-

tant about assuming the factory has blundered; the odds are that you've misinterpreted the plans or been thrown off by the deceptively curved lines of the hull.

- *Too-fast fastening.* When the hull takes shape, some beginners have an urge to slap on the planking and take to the waves. But careful fit-up of the waterproof-plywood panels makes a boat stronger, tighter and better-looking.

Where to build it? Even if a shop door is too small to let the finished boat out, it is sometimes smart to do much of the work there—perhaps even a partial assembly, short of permanent fastening—and then



RUNABOUT by U-Mak-It Products, New York City, is 13'3" long with a 57" beam. Center deck covers storage shelf. The hull will take motors up to 25 hp. One of this company's kits, plus a finished boat, is shown at far left. It costs about \$150.



RACING PRAM by Chris-Craft Corp. was assembled by 13-year-old Jim Pocklington (above) as part of a class program at Algonac, Mich., school. The 10' kit is \$85.



FLAT-BOTTOM ROWBOAT by Ozarka, Inc., of Woodstock, Ill., weighs 80 lb. and can be assembled in 15 hours. Boat is 9'6" long with 44" beam. The sides are 14" high. Price: \$55.

complete the job outside. If the boat is to be finished in the garage, this minimizes the time your car is displaced.

Many a kit boat has been built right in the back yard, covered by a tarp between sessions. Don't overlook the possibilities of

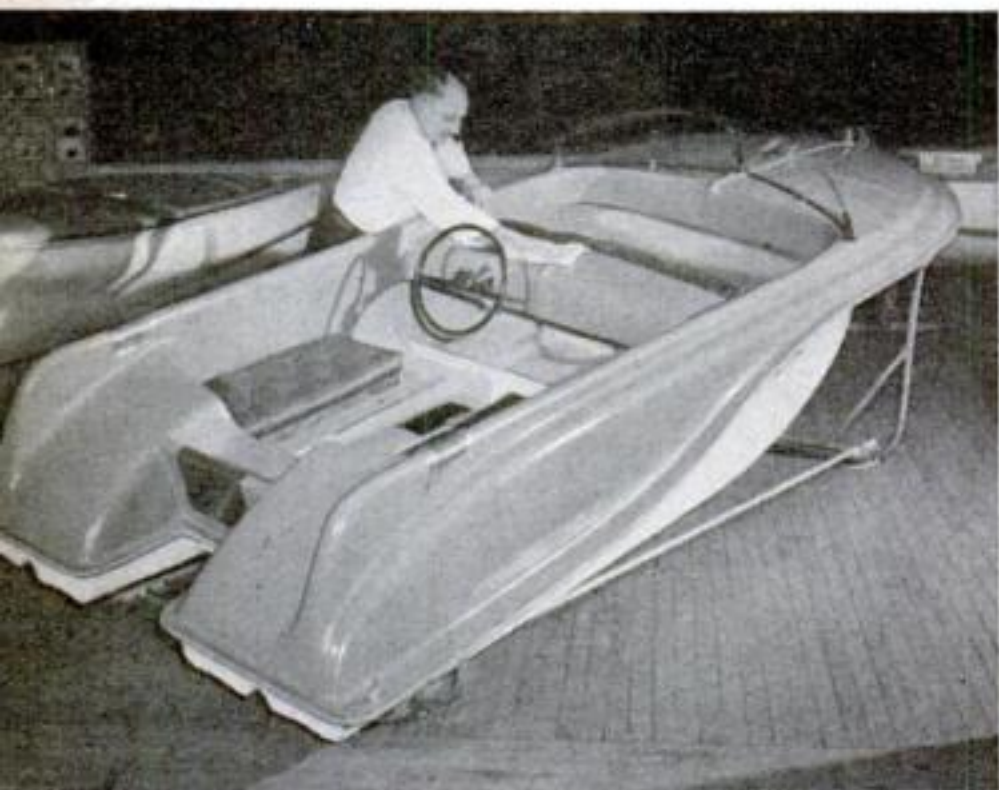
a porch, either, though you'll almost certainly need a level building platform on the floor. If you build in the basement, remember that before the job is done, you will get utterly sick of home-cooked jokes about your chances of getting it out whole. **END**

Plastic Boat Needs No Paint

INTRODUCED at the New York Boat Show, the streamlined, molded-plastic outboard runabout below will be available soon.

The craft is molded of glass-fiber-reinforced plastic in two sections—hull and deck—which are then joined. Worms, barnacles or corrosive elements in fresh or salt water will not harm the boat. It never requires calking or painting and it will not rot. The colors—blue deck and white hull—are molded in the plastic.

Specifications include: length, 14' 3"; beam, 60"; depth amidships, 23"; and weight, 350 lb. The boat seats five persons and can be used with motors of 7½ to 25 hp. *Winner Mfg. Co., Trenton, N.J.*



Calking Screw Stops Boat Leaks

You don't have to haul a boat out of the water to stop most leaks if you use this hollow screw. The screw can be used at any place that two planks overlap. A pilot hole is drilled and then the screw is threaded in by hand. An ordinary grease gun is used to force light calking compound (right) through the hole in the screw and between the planks to seal the leak. Spots where it can be used include garboard planks, centerboard trunks and batten seams. *K & S Engineering & Sales Co., 33 Maiden Lane, Little Ferry, N.J.*



Canned Fuel Heats Boat Cabin

A **LITTLE** heater (6" by 10¼" by 14¼" high) uses canned heat as fuel and is said to warm up an average boat cabin in 10 to 15 minutes. It also can be used in tents. The finish is rustproof vitreous enamel. *Sterno Corp., 9 E. 37th St., NYC.*



DO IT THE EASY WAY...WITH TAPE



To remove addresses so cartons can be reshipped, cover with cellulose tape, then strip off. The marking will come, too.



To strengthen chalk against breakage, wrap it with masking tape. Start the spiral at the thick end of the stick so that it can be unwound and torn off as the chalk is worn down.

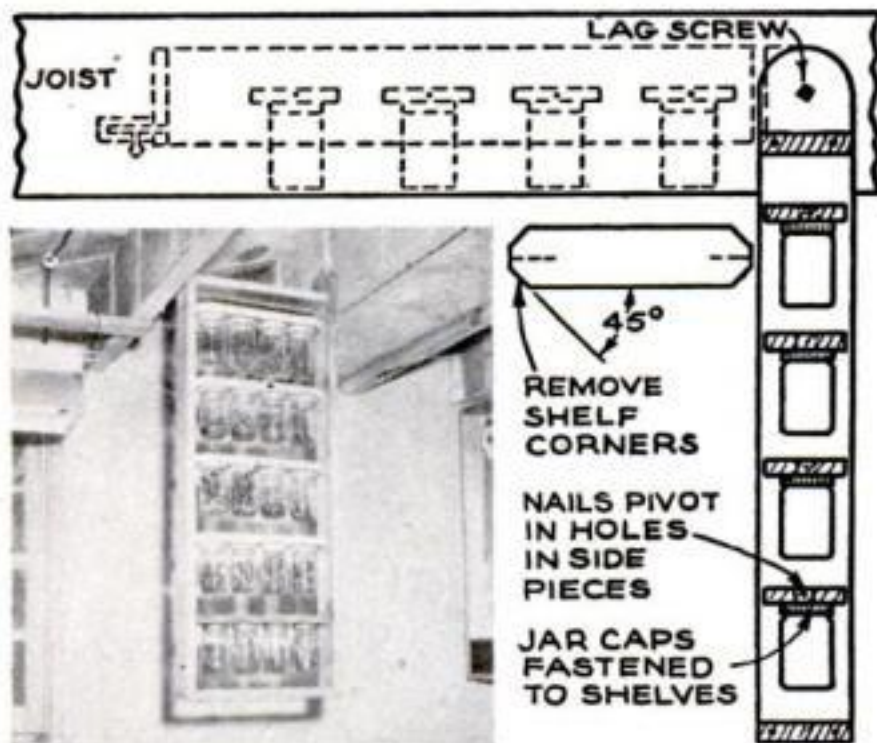


To prevent leakage when traveling, seal lids on jars, caps on bottles with plastic electrical tape. Seal poison at home.

To mark work for drilling equidistant holes, bind the punch to a compass with friction tape. Lift compass before tapping punch to keep the separation adjustment constant.

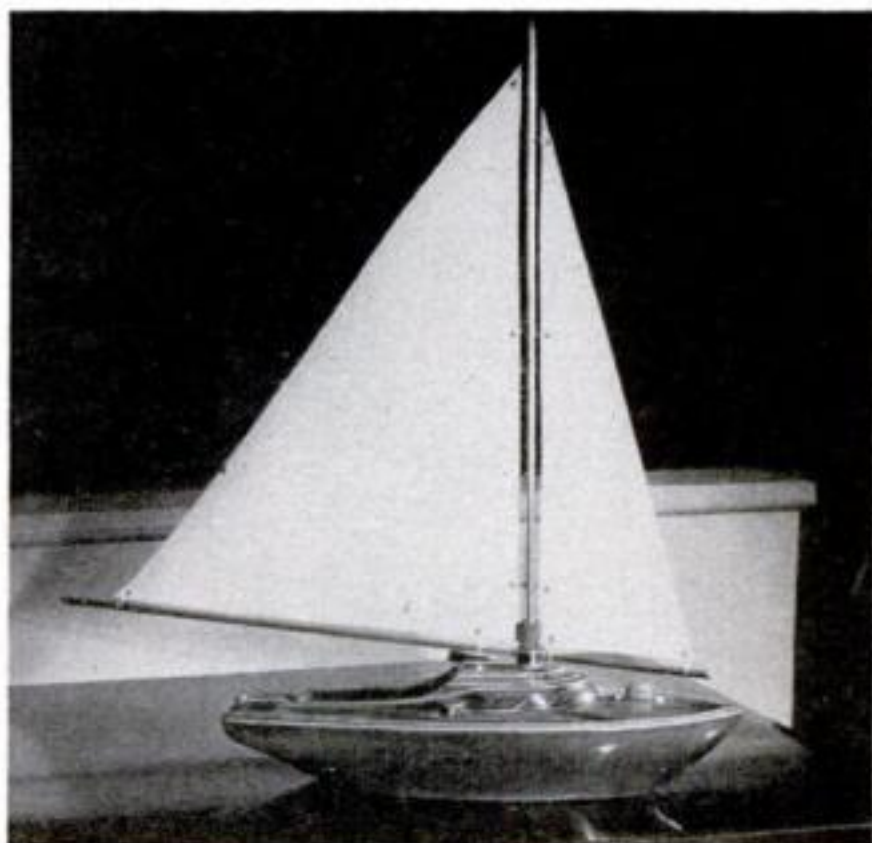


Rack Nests Between Joists



WHEN not in use, this small parts rack can be swung up out of the way between two joists. The shelves pivot on nails, letting the jars hang bottom down when the rack is in its stored position. Lag screws serve as pivots for the top of the side pieces with washers between the joists and side pieces. Use lumber to suit your requirements. I built this rack of 1" by 3" stock. A barrel bolt or a screen door hook will hold the rack in the up position.—*John G. Voelker, Towson, Md.*

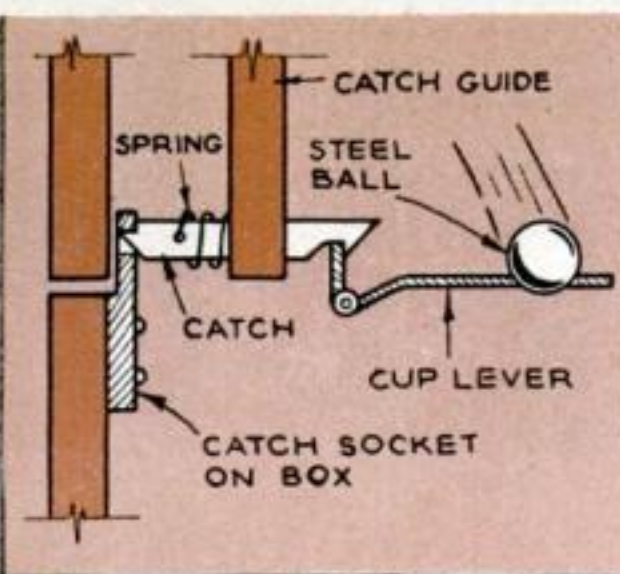
Sailboat Mast Catches TV Waves



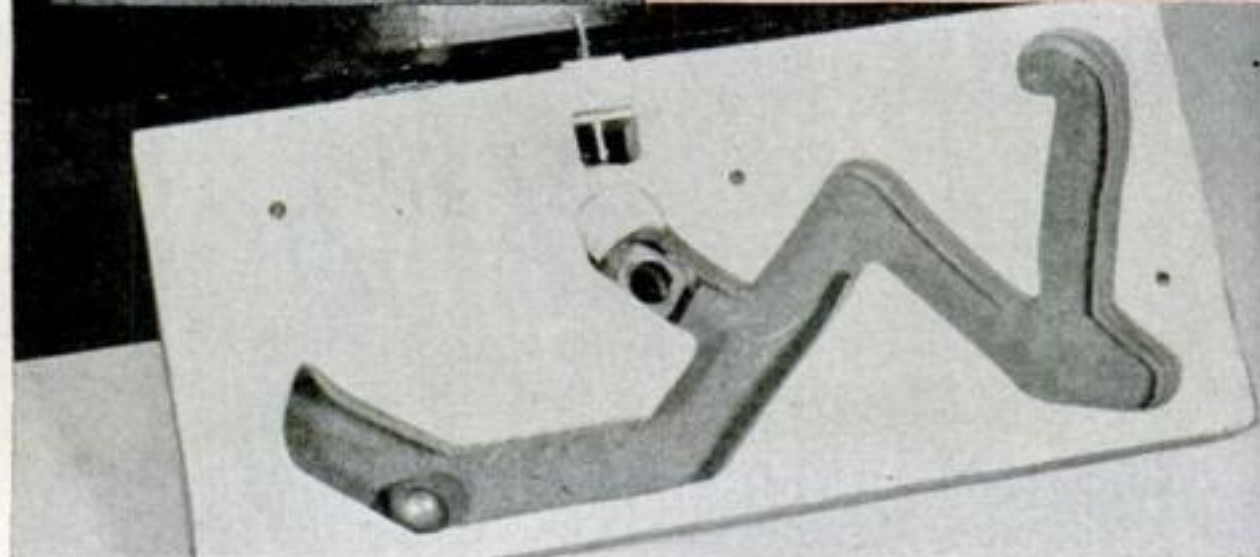
THE only waves the trim little sailboat model above rides on are the television kind. It's an indoor antenna. The main boom swings to any direction to bring in the clearest picture, and a knob on the forward deck controls a tuning capacitor that matches antenna impedance to the set. The boat has plastic sails and a ceramic hull. Earle A. Kraft, 619 Round Oak Rd., Baltimore, sells it for \$12.95.



Wizard's Boxes



Pinball puzzler. The loud rattling noise which this wizard's box makes when it is shaken invariably leads unfortunate experimenters to jounce it around like a tambourine, convinced that something is bound to let go. An irregular track for a steel ball or marble is provided under the box lid, with a single channel leading to a small cup. When this cup is depressed, it withdraws the lid bolt, freeing the top of the box. Until you know the trick, no amount of work will jockey the ball into the right groove and the cup. Make the track for the ball of $\frac{3}{8}$ " plywood, backed by smooth-surfaced wallboard. A flashlight reflector will make an excellent shield for the depressed cup.



Secret locks, based on principles of physics, engineering, chemistry and metallurgy, will puzzle your friends until you show them the simple tricks that release the lids.

You Can Build

By Prof. A. M. Low

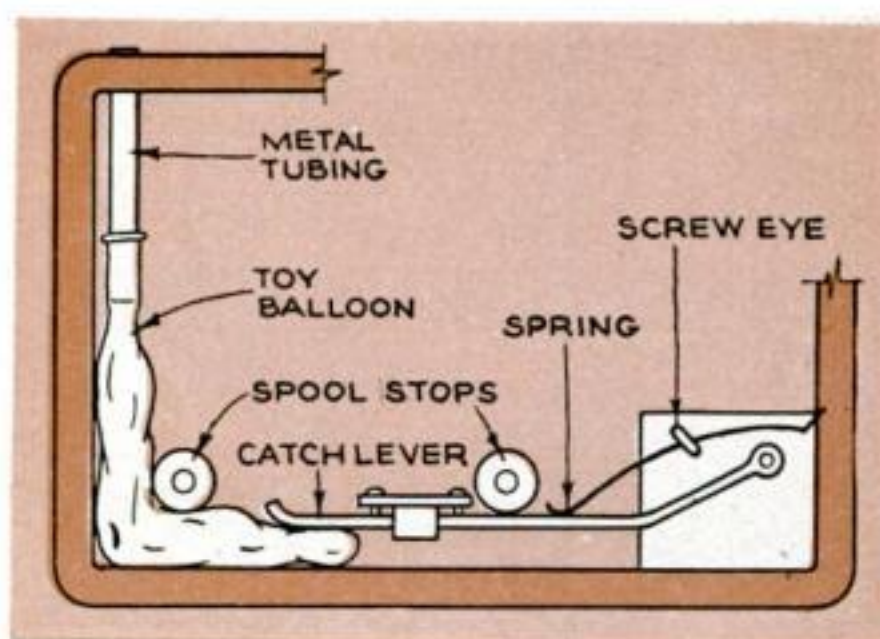
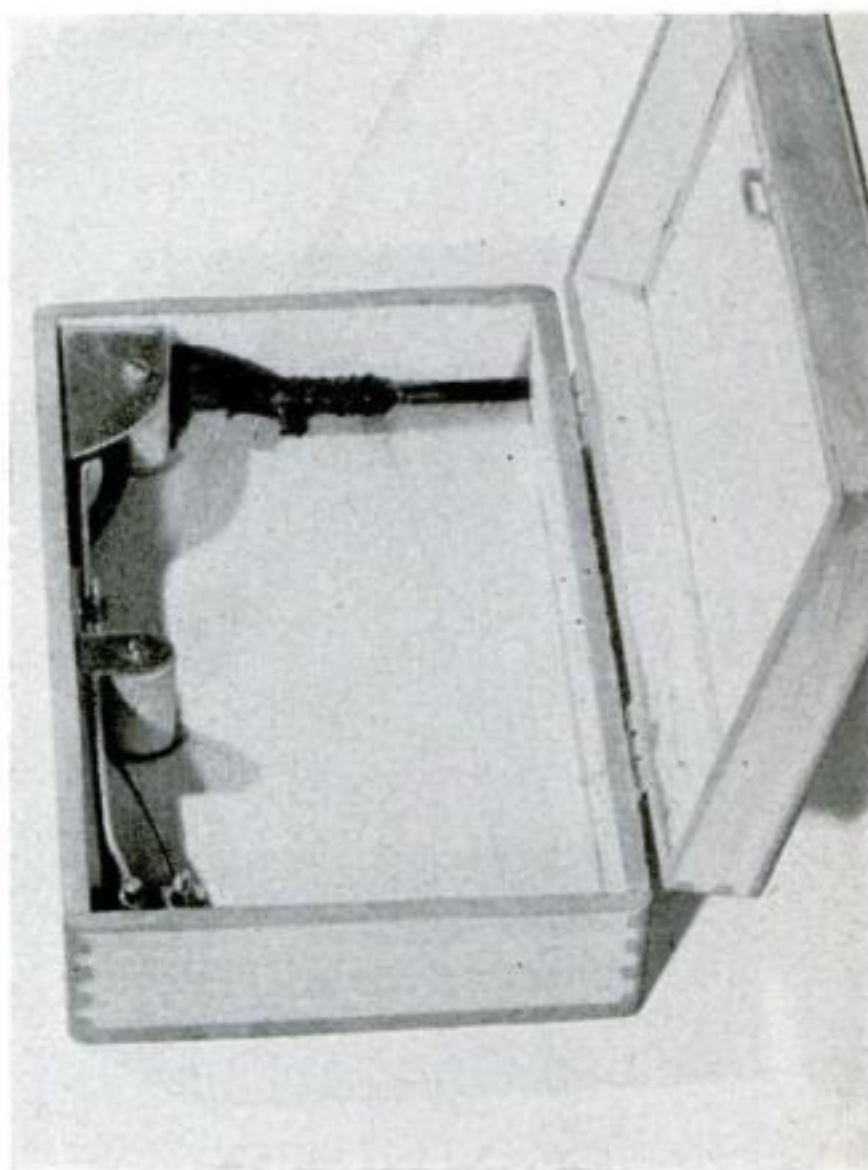
BOXES which cannot be opened without a knowledge of their unseen locking mechanisms probably originated in China many centuries ago. The ancient Egyptians may have used them. And the Borgias refined the design to reward the successful puzzle fan with a lethal shot in the thumb.

Today, spring-loaded daggers are out, but the trick box is still a parlor menace. Your friends can probe and rattle the eight little wizard's boxes pictured here for hours on end without discovering the simple devices which release their lids.

Unlike most Chinese boxes, which are made with one particular part of a pattern that must be pressed or slid into place before the lid can be raised, these boxes depend upon a mixture of physics, engineering, chemistry and metallurgy for their operation. Patience and a good memory will not open them; the solution calls for the kind of intellectual exercise which makes a puzzle really novel.

There are innumerable variations of the designs I have outlined. During the last war those who were engaged in the manufacture of booby traps learned how many trick devices can be used. One of the simplest of all bomb boxes was detonated when a globule of mercury closed a circuit as the box was lifted or tipped in some particular direction. A wizard's box could be opened by using a similar globule of mercury to feed current to a solenoid or magnet. Here, of course, the contact wires would have to be carefully placed, to avoid accidental releasing of the lid. Or a penny might be used to close a circuit from a battery inside the box to a magnet, simply by threading two lead wires through a side wall. You can even make a box that opens only for a certain musical note by basing the lock on a reed which responds to that note.

Try your hand at one of these wizard's boxes; they will pay off, both as craft projects and as entertaining puzzles.

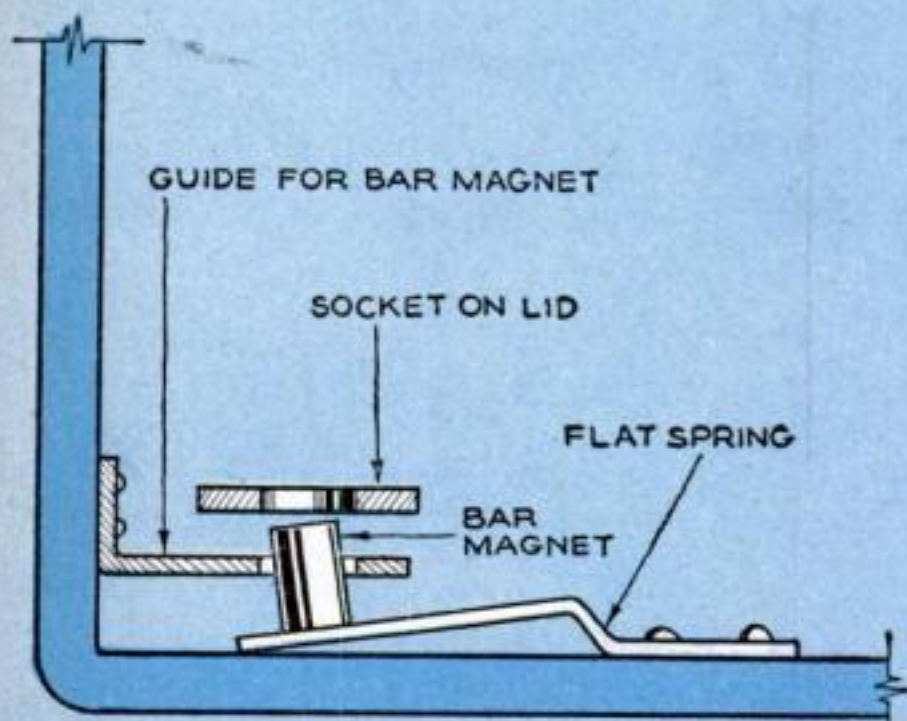


Pneumatic release opens this brain teaser, which calls for a few pieces of brass stock, a weak strip of spring steel, a small metal tube and a toy balloon. By breathing through a minute hole in one corner of the box, you inflate the balloon, causing a spring-backed lever to withdraw a catch from a latch plate attached to the lid of the box. Spring adjusts by turning the screw eye, must be just strong enough to deflate balloon.

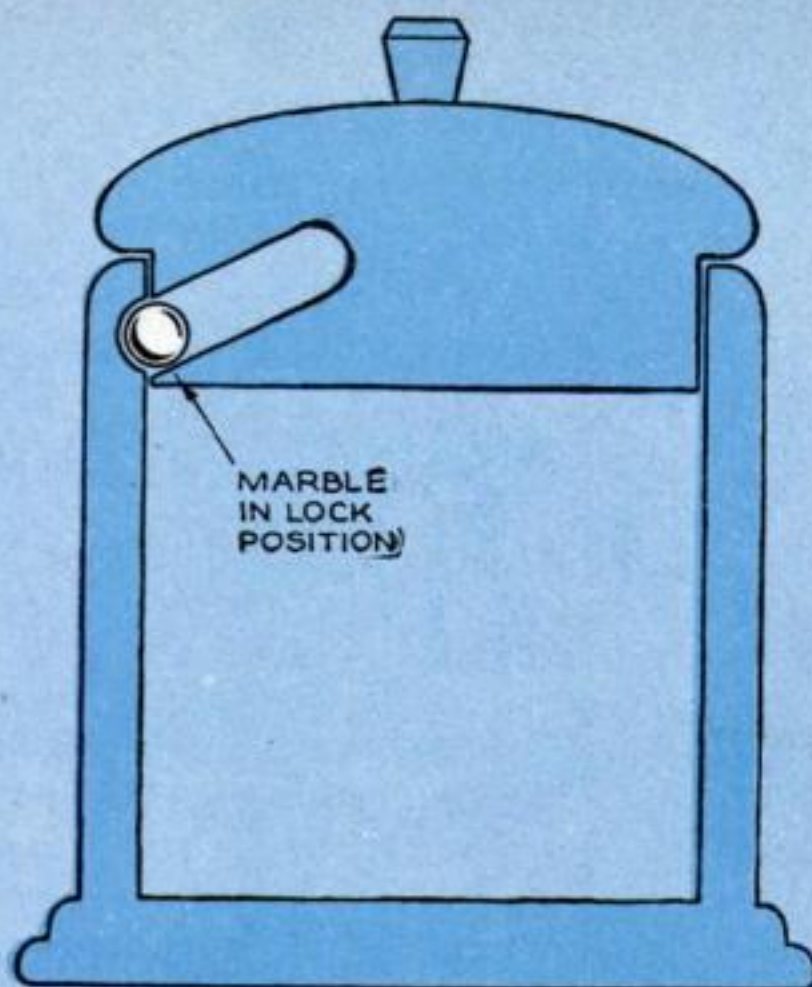
Please turn the page for more wizard's boxes.

MARCH 1953 189

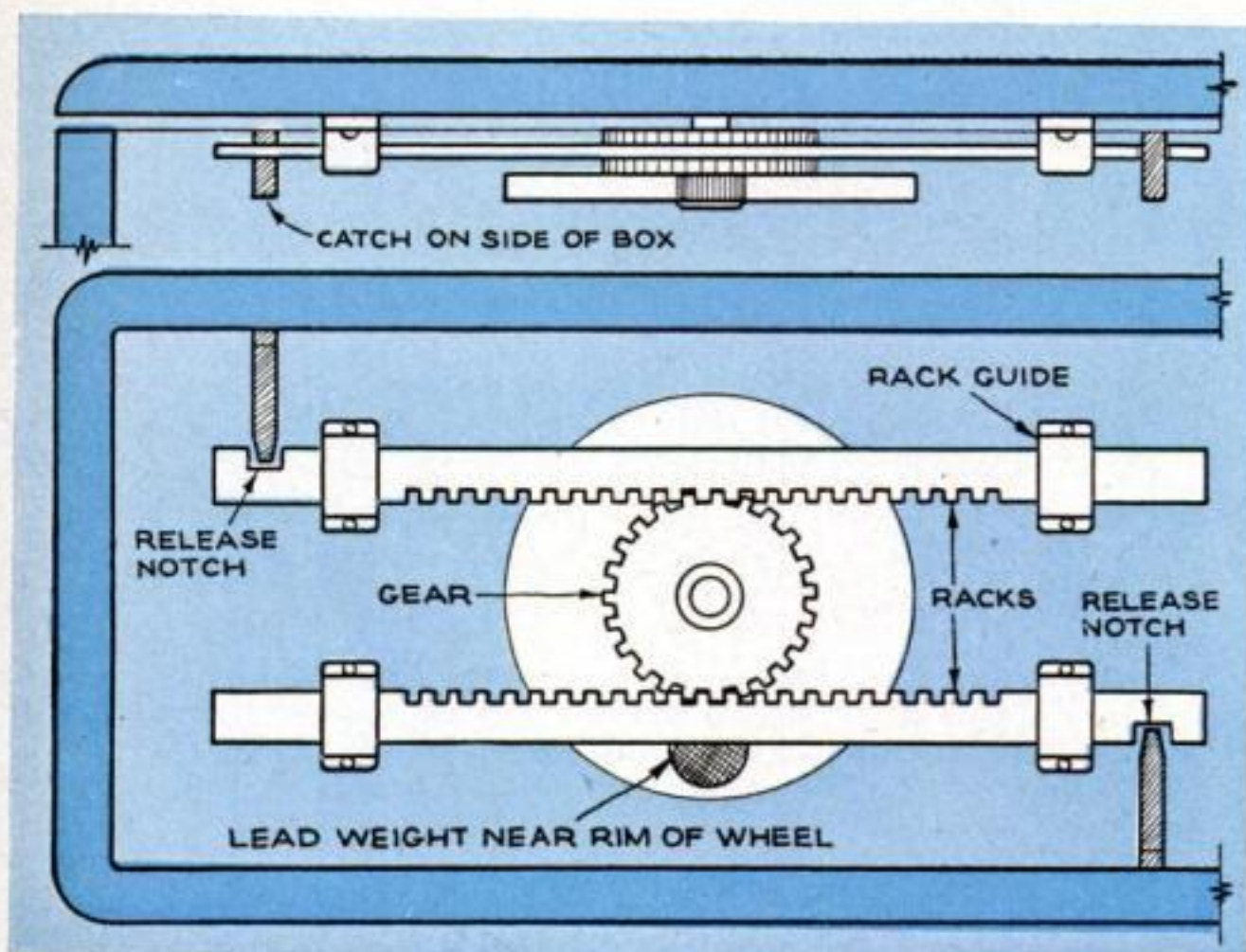
Magnets, marbles, and metal that melts at 70° keep the lids on these four boxes. Weighted wheels lock the other two.



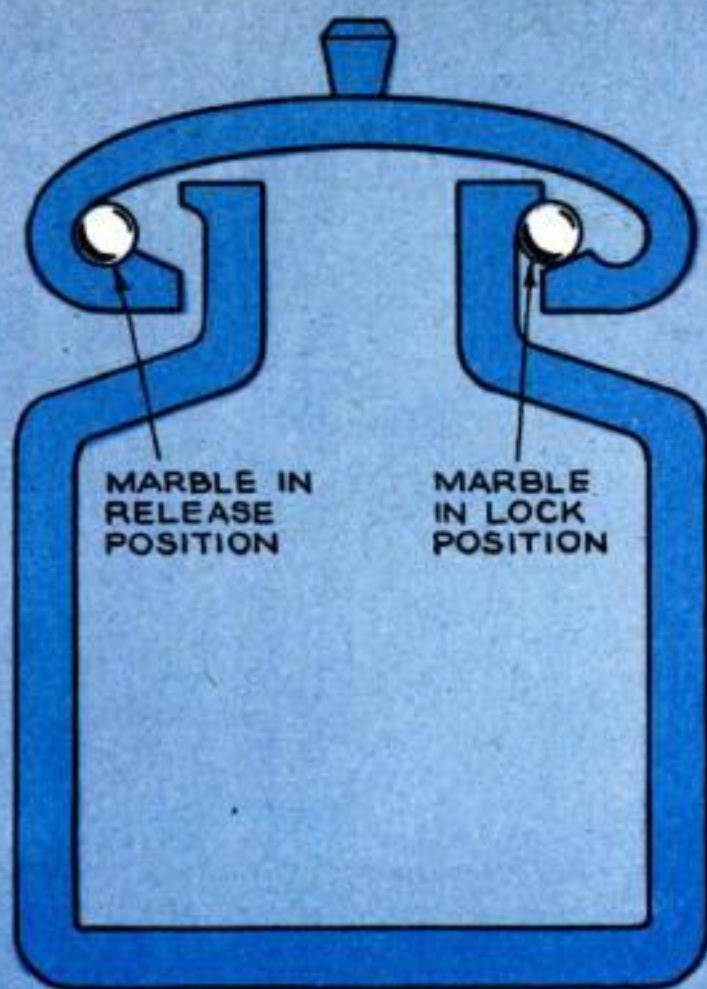
Key without a keyhole opens this magnetic baffler. A small bar magnet forms the catch. It is attached to a thin strip of spring brass that normally presses it through a nonmagnetic guide and into a nonmagnetic socket attached to the lid of the box. In this position it is close enough to the side of the chest to draw back from the brass socket when a small piece of iron is placed against the outside surface of the box. An old iron key is a good releasing agent; you have only to fit it to an imaginary keyhole and the lid comes free. A variation would be to use an iron bar as the catch, and a magnet for the key. Use a small but strong Alnico magnet in either case and brass or aluminum for the other parts.



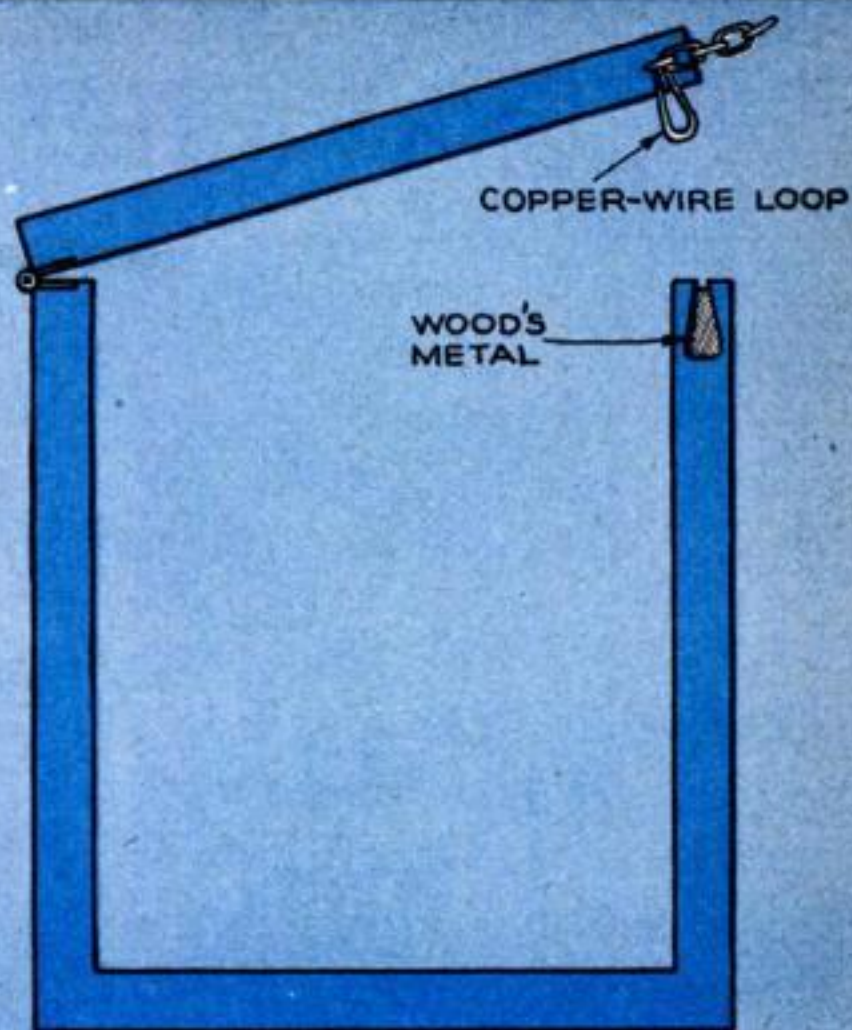
Gravity locks this cylindrical container—a natural for the craftsman with a yen for lathe work. The body of the box is turned with a hemispherical groove near the top. The lid is a second turning, having a deep setback section which fits into the neck of the box. A hole is drilled at an upward angle into the side of the setback, and a marble inserted in this hole will drop part way into the hemispherical groove, locking the lid in place. For anyone familiar with the mechanism, it is a simple matter to tilt the box in the right direction, allowing the marble to roll into the lid where it no longer serves as a catch. Sand the marble channels well so that it will roll freely without catching at any point.



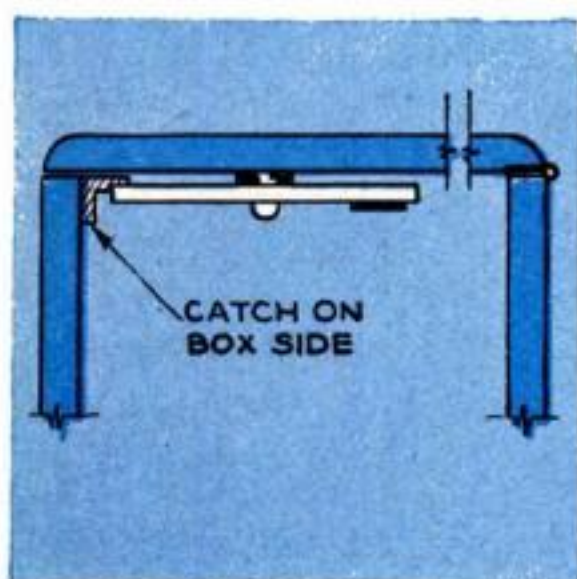
End-over-end motion does it. The mechanism on the lid consists of a small gear wheel, interacting with two racks. Near the end of each rack is a notch, and at a certain point in their travel these notches clear a pair of catches in the box. A small weight near the rim of a disk attached to the gear wheel causes the gear to rotate when the box is flipped over. To open the chest, it must be rotated until the racks reach one limit of their travel and then revolved a known number of times in the reverse direction. Rack teeth can be shaped with a jeweler's file to mesh with a clock gear.



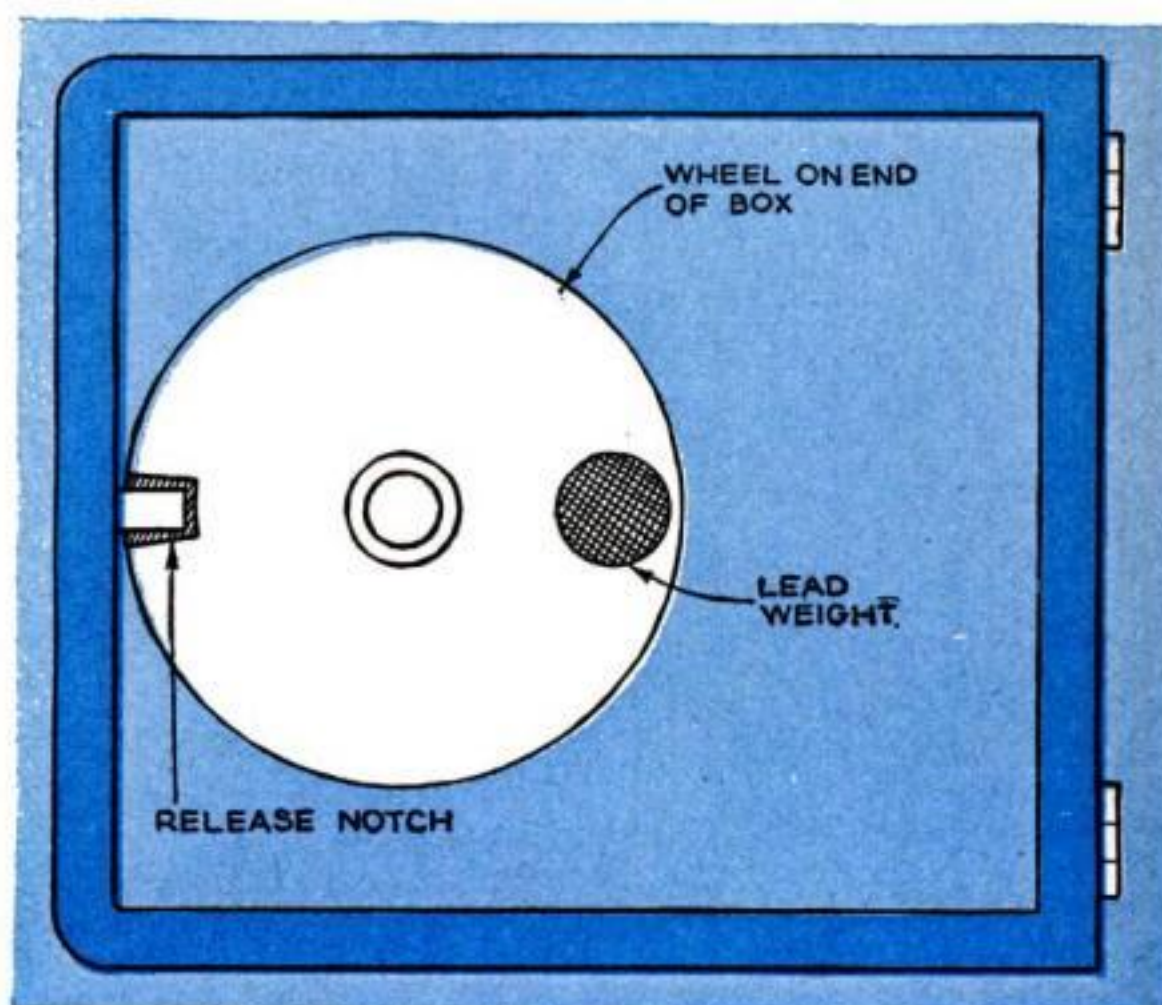
Centrifugal force releases the top of this canister which, like the gravity box, can be used to hold cigarettes or candy. An ideal project for the metal worker, it uses two or three marbles, placed in a groove in the lid, to hold that member in position. If the box is shaken, the marbles jog out of the groove and then roll down between the lip of the box and the sloping lid flange. A glance at the diagram shows how this locks the lid in place. A quick twirl of the box forces the marbles back up the flange and into the groove. Presto! You can now help yourself to another bon-bon. As with other boxes, be careful all parts are smooth and free-acting before you close it for the first trial.



Thermal tripper-upper. Few wizard's boxes are simpler to build and more difficult to open. The successful puzzle fan must place a lighted match or cigarette lighter to the two small extensions of twisted copper wire which project from a small hole in the lid of the box before the catch can be released. Actually, the wire extends in the form of a loop into a globule of low-melting-point metal poured in a small, undercut hole in the rim of the box. Wood's metal, which melts at about 70° , is an ideal locking alloy. Additional, blind wire extensions will add to the puzzle fan's confusion but are hardly needed. Heat is of course necessary when you wish to relock the box for another occasion.



Variation of the end-over-end box has a weighted wheel on the lid. A release notch at one point on the circumference of the wheel clears a catch on the side of the box. Obviously the lid cannot be lifted unless the box is tilted at exactly the right angle. Make sure the wheel runs true and free. END



Storage Chest Hides Wardrobe Trunk

You can keep your trunk in the living room and use its space at the same time if you build a simple cabinet like this around it.



THAT hard-to-store wardrobe trunk can become a useful piece of furniture when it isn't traveling. Concealed behind a simple cabinet front like this, its drawers and compartments provide a working wardrobe for extra clothes and other storage.

When you're ready for a trip, there's no lugging it down from the attic or up from the cellar, no dust and mildew to clean off. Just slip it out of the cabinet and you're set.

Frame. The cabinet is little more than two sides and a top with doors in the front. It has no back or bottom, just a narrow strip to tie the sides together at the rear.

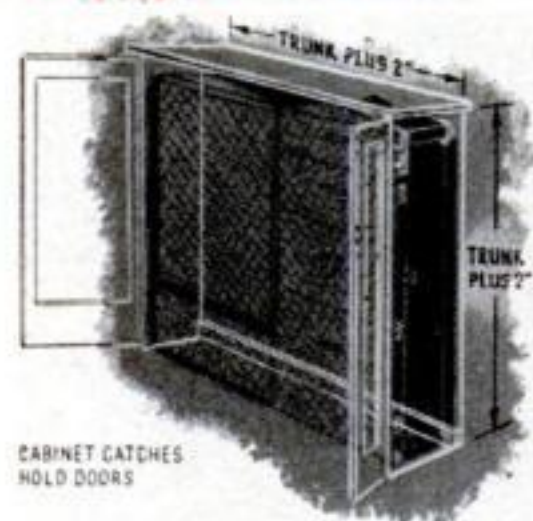
Make the top and sides of $\frac{3}{4}$ " plywood or clear-pine shelving. Plywood is less likely to warp, but boards are handier since you can probably use standard widths and save sawing. Give the top about a 1" overhang all around—more in back if a baseboard and molding must be cleared.

Fasten the top and sides together with wood cleats glued and screwed to the inside upper corners. This will keep screw heads from showing from the outside.

Choose your doors. These can be as plain or fancy as you like. The ones shown above are simple wood frames with metal screening tacked to the inside. The screening comes in several mesh sizes and in brass, bronze and the more common plaster-lath type that can be painted. It is available at hardware stores and lumberyards.

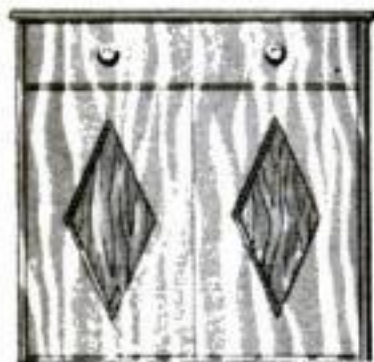
You can also make the doors solid if you like, using any one of several designs, such as the two shown here.

Finishing. For a really slick job, you can cover the top with one of the marbled or wood-grain decal sheets and finish the rest natural. Or you can simply paint the entire cabinet to match surrounding furnishings.—Walter F. Buehr, NYC.



CABINET CATCHES HOLD DOORS

DIMENSIONS are set to clear trunk easily. Make doors $\frac{1}{4}$ " shorter than sides to clear floor—shorter for a thick carpet. Add $\frac{1}{2}$ " quarter-round molding under the top overhang and at bottom of sides for trim.



SOLID DOORS are easiest to make. Ones at top are plain plywood with big brass pulls. Those at bottom have diamond-shaped cut outs backed by wood of contrasting grain. For neat job, use hidden cabinet hinges.

Engine sluggish, gas-greedy? Chances are the timing is off.

A NEON timing light can be a worthwhile addition to a car owner's tool kit. What will it do for you? Well—

If your engine lacks power, if it misses on acceleration, if it will not idle smoothly or if you're not getting all the mileage you did when the car was new, your engine probably needs timing. For best economy, it should be timed anyway every 2,000 miles, certainly after every 5,000 miles.

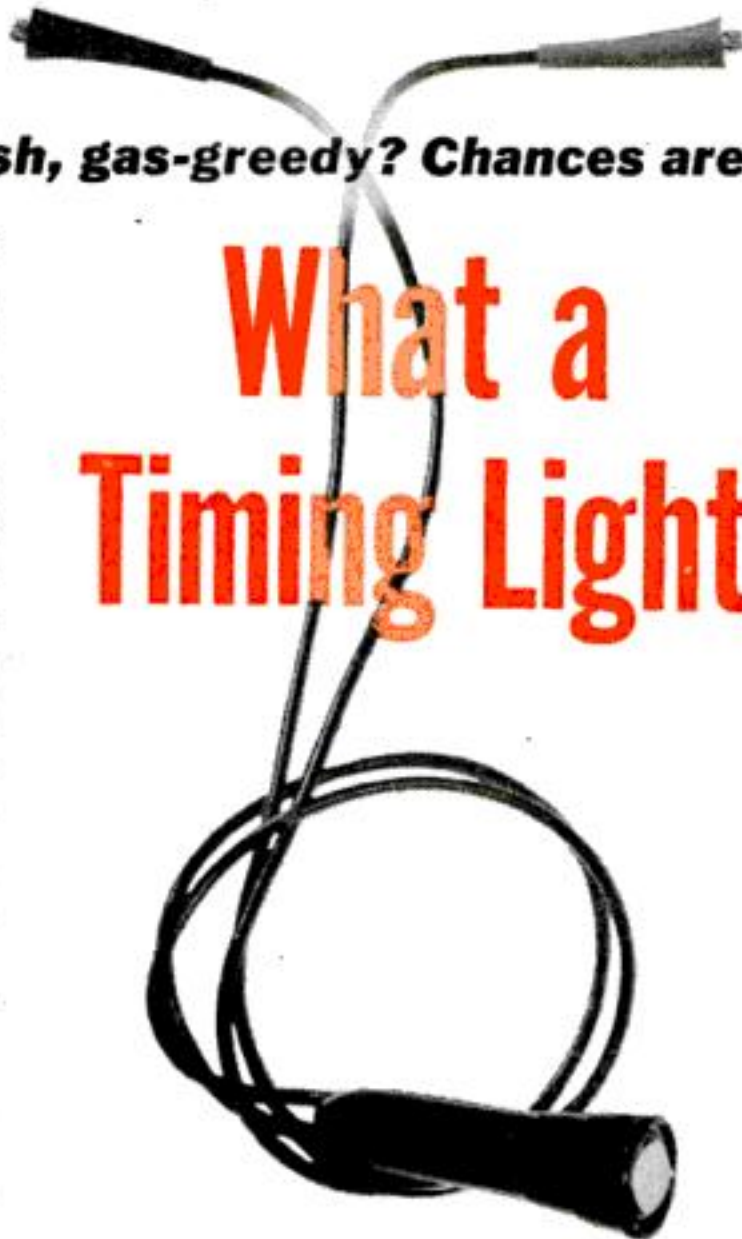
If the timing operation is to have any value, the distributor points must first be dressed with a flat file—or replaced if badly worn—then properly gapped. (A tune-up chart for your car will give this breaker gap, as well as the timing data you need.) The gap must be set when the rubbing block is on the highest point of a cam lobe. If it is not, the rubbing block will continue to rise as the distributor rotates and the final, actual gap will be more than the recommended value.

Turn the engine over—ignition off—until the rubbing block seems to be on the high point of a lobe. Insert a feeler gauge of the proper thickness between the points, and turn the adjusting screw until a very slight drag is felt on the gauge as it is moved back and forth. The lock screw has to be loosened before the adjusting screw can be turned, then tightened when the adjustment is finished.

How it works. Basically, a timing light consists of a neon flash tube designed to operate at the high voltage of the secondary-coil circuit. A neon tube is used because it has no time lag in flashing on or off. Since this timing light is connected to one of the spark plugs, it will flash each time that plug fires. If the light is directed at the timing marks, a stroboscopic effect will be created. Because of the human eye's persistence of vision, the rotating engine part will appear to stand still. Then, by

What a Timing Light

Can Tell You



properly correlating the rotating timing mark—*seemingly* standing still in one spot—to a physically stationary part of the engine, you can get the spark plug to fire at the correct piston position.

Marks. You may find timing marks engraved on the crankshaft pulley or vibration damper at the front of the engine or on the flywheel at the rear, depending on the make of your car. (See the data card at the end of this story.) Usually timing marks consist of lines indicating degrees before and after top dead center (tdc). A heavier line or a zero line indicates tdc. A pointer, which serves as a reference, is found on a stationary part of the

engine, such as the gear-case cover.

But, if you own a Ford more than five years old, be sure you don't make the mistake of the back-yard mechanic who discovered too late that no light could be used to time the ignition of his particular car, a 1941 Ford. Until the big model changes of five years ago, Ford-made cars did not have the marks on which the stroboscopic effect of a timing light depends—one mark on a revolving part of the engine and another (perhaps a pointer) on a stationary housing or plate. Earlier Fords are timed by using a special fixture or a pair of metal rulers to position the distributor on its shaft.

Timing your engine. First be sure the engine is warm. If the timing marks are on the damper or pulley, you may have to remove the fan belt to use the timing light.

Disconnect the ignition lead going to the No. 1 spark plug, the one closest to the radiator. In a V-8 engine, the No. 1 plug is usually forward on the driver's side. However, if the timing marks do not show when the timing light is connected to this plug, try the opposite one. Connect one lead of the timing light to the ignition wire, the other lead to the spark plug. Be sure



TIMING MARKS are engraved on a rotating part of engine—vibration damper, crankshaft pulley or flywheel. Triangular pointer at left is stationary reference. Lines indicate degrees before and after tdc.

TURNING DISTRIBUTOR so that the proper timing mark lines up with reference pointer puts the timing on the nose (right). If you must reach into a mess of wires like this, turn off engine to avoid shock.



to support the ignition wire so that it will not touch bare metal and be shorted out, for then the timing light will not operate. Also, make sure that the timing light leads do not ride next to any rotating engine parts, or the leads may be severely abraded, possibly cut.

Loosen the distributor-arm lock screw or clamp just enough so that the distributor can be rotated by hand. If the vehicle has an "octane selector," set it at "0" before loosening the distributor.

Start the engine and let it idle. Hold the timing light in such a way that its flashes are concentrated directly on the rotating member bearing the timing marks. Rotate the distributor assembly until the timing mark appears under the pointer.

Stop the engine, lock the distributor arm, then start the engine again. Accelerate it, using the throttle linkage on the carburetor, and at the same time observe the timing mark. It should move forward (in the direction of rotation) to indicate that the auto-

matic spark-advance mechanism is functioning. This mechanism, operated automatically by either the engine manifold vacuum or a centrifugal governor, causes a shift of the spark and ignites the gas-air mixture at the most advantageous piston position for each engine speed.

Stop the engine again. Disconnect the timing light and connect the ignition wire to its spark plug. Reinstall the fan belt, if removed, and take up the slack by proper positioning of the generator. Do not get it too tight or you will cause extra wear and tear on the generator bearings and water-pump bushings. The fan belt should be just tight enough so that it can be depressed about $\frac{1}{4}$ " at the center with light pressure.

The final check is a road test. Based on this, you may want to readjust the timing a little for best performance and economy with the gasoline you are using. **END**

Next Month: Popular Science Monthly will tell you about the tool that road-tests a car while it is standing still—the dynamometer.

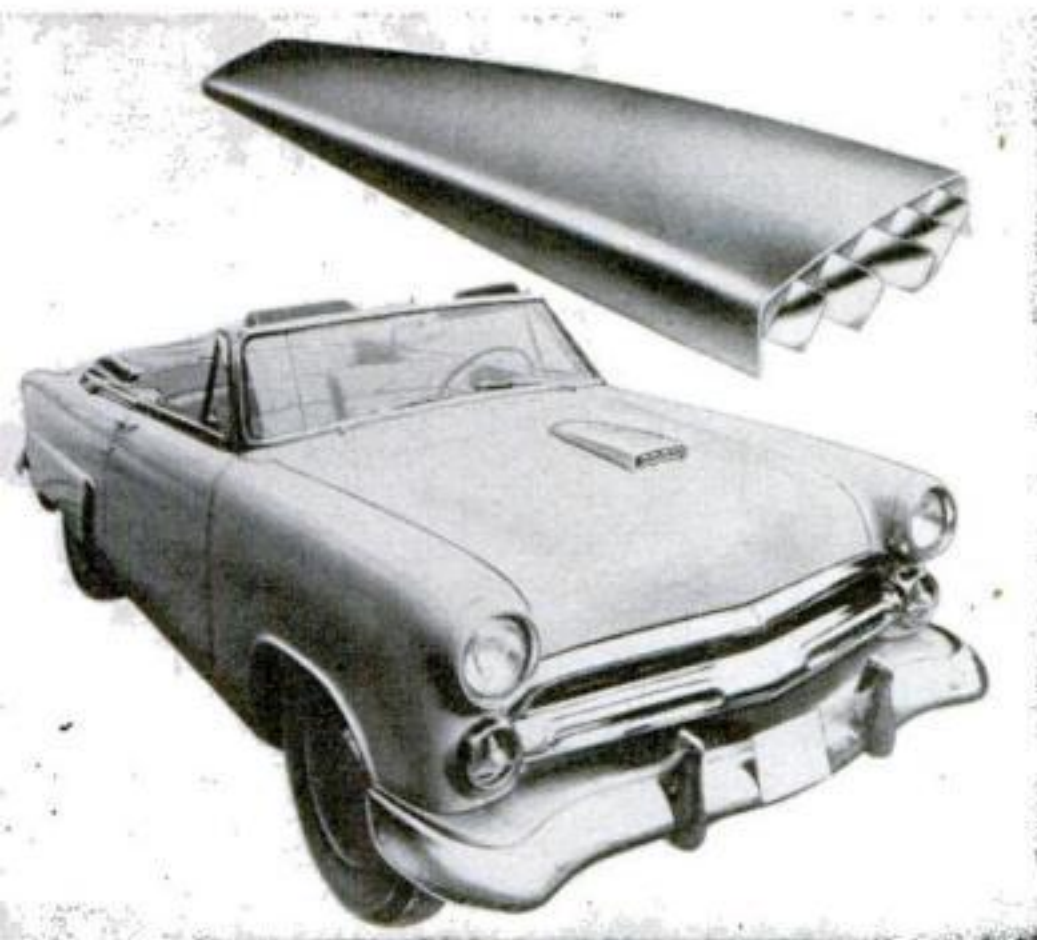
TIMING MARKS

Ignition timing marks are found in three spots on U. S. cars—the flywheel (F), vibration damper (VD) or crankshaft pulley (CP).

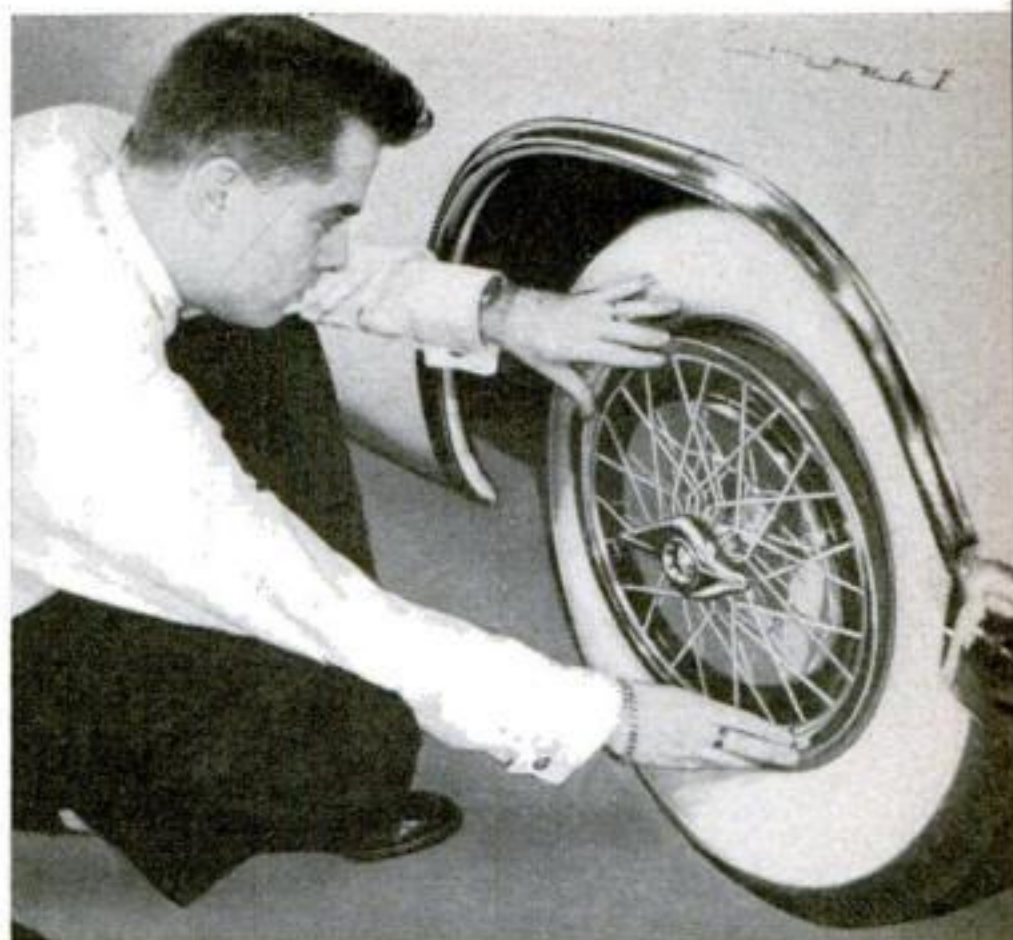
Buick, F; Cadillac V-8, 1935, F; 1936 and later, VD; Chevrolet, F; Chrysler, VD; Crosley, F; DeSoto, VD; Dodge, VD; Ford, to 1947, none; six, 1948-51, CP; six, 1952, VD; V-8, 1948, none; 1949-1952, CP; Henry J, four, F; six, VD; Hudson, F; Kaiser-Frazer, 1947, F or VD; later, VD; LaSalle, VD; Lincoln, 1935-40, F; 1941-48, none; 1949-52, VD; Lincoln Zephyr, 1936-41, none; Mercury, to

1948, none; 1949-52, CP; Nash, VD; Oldsmobile, six, F; eight, to 1948, F; 1949-52, CP; Packard, six and eight, to 1940, F; later, VD; super eight, VD; Plymouth, to 1938, CP; later, VD; Pontiac, to 1948, F; later, VD; Studebaker, 1935, F; Dictator Six & Commander, VD; Champion, to 1942, F; later, VD; Eight, 1936-37, F; later, VD; Willys Jeep, F; Willys six, VD. Most new cars have marks on damper.

FOR YOUR POPULAR SCIENCE MONTHLY INFORMATION FILE



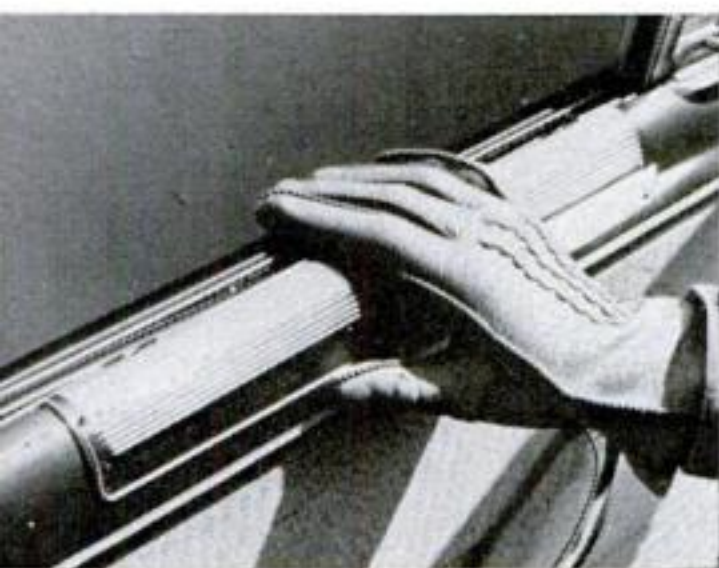
Hood Ornament. A distinctive ornament on the hood will go a long way towards giving a car a custom appearance. You can buy this one plain and paint it to match the car, or get it with chrome finish ready to mount. It is 7 $\frac{3}{4}$ " wide and 20 $\frac{1}{2}$ " long. *Fur Sales, 1031 E. 63rd St., Chicago 37.*



Wire Wheels Snap On. Disks that look like wire wheels are the latest thing to give your car a racy, imported look. Several manufacturers now offer them, and prices vary considerably. The one shown here is made by Automotive Division, Gaylord-Shelton Inc., Chicago.

Brighten Up Your Car for Spring

Here are the latest accessories to give it that snappy look.



Protect the Sill. The sill of the driver's window is always one of the first spots on a car to become shabby. The new Protect-O-Sill, made of plastic, will prevent or hide this wear. Available in red, blue, green and amber, it simply clips on the sill. *Tenna-Lite Corp., 312 W. Illinois St., Chicago 10.*



For Washing Your Car. This fountain brush includes a needle valve that screws on a standard hose, enabling you to control the water flow with one hand while you manipulate the brush with the other to wash your car. *Free Action Fountain Brush Mfg. Co., 4629 13th Ave. South, Minneapolis 7.*



Frame Your Plates. A flexible frame molded of Vinylite will set off your license plates and protect the edges from scuffing. Just stretch the frames around your plates. Frames are available in black or white in sizes to suit the plates made by different states. *John Carlson & Sons, 12 Cass St., Springfield, Mass.*

Gus Answers an Ambulance Call

After one little session as Doc Tandy's helper, Gus was very glad indeed that automobiles never suffer from acute appendicitis.

By Martin Bunn

GUS WILSON watched the smoke from his pipe drift indolently toward the ceiling while Doc Tandy poured another round of coffee.

"You know, Gus," the Doc was saying, "I'm glad you came over. I haven't sat down for a good bull session like this for a long time. A man gets tired of talking and thinking with 60-buck words and medical terms. I couldn't have prescribed a better medicine for this old carcass of mine."

"Well heck, Doc, I'm tickled pink to see you standing still for a change." Gus savored the hot coffee. "When was your last vacation?"

"Long ago." Doc shrugged. "There aren't enough doctors in town as it is. But I'm used to it. I should think you have pretty much the same problem, Gus."

"At least I usually get away for a week or two each year."

No Rest for the Weary

The phone rang softly on Doc Tandy's desk.

"See what I mean? Even on Sunday." The snow-haired man smiled and went to answer it.

Gus stirred his coffee slowly and stared through the window at the budding leaves on the trees outside.

"Looks like I'll have to interrupt this enjoyable session to soothe a pet hypochondriac of mine. Bill Williams, up on Waltham Road. Claims he's dying of appendicitis, and between you and me, he's been dying of it



off and on for several years. Bill's a bachelor, and I'll lay odds he's just got a dose of his own cooking again! Want to go along? It'll be a pleasant drive if nothing else."

"Sure, Doc. Why not?"

"Let me get my bag. I've got some belly-ache medicine in it that makes castor oil taste like maple syrup in comparison! Bill is one of those people who thinks medicine has to taste horrible to be any good."

They went out to the driveway and

climbed into a battered 1940 sedan. As Doc backed her out, he said, "Glad to have you along, Gus. I don't trust this old heap, but my wife's gone visiting in the new car, the one I usually drive on calls."

After three-quarters of an hour of peaceful driving, Doc eased on the brakes and turned off onto Williams' road. He stopped in front of a porch cluttered with hounds.

"This is it. I'll be out in a minute, Gus."

Doc Tandy fixed a serious expression on

*Step by step, Gus and the Doc
carried the sick man out to the car.*



his face, straightened his coat, picked up his bag, and winked at Gus before walking up the front steps.

Five minutes passed, and then 10 before Doc came out again. When he did, his stern expression wasn't for the benefit of his patient. It was white and real in his face.

Williams Wasn't Fooling This Time

"Gus, can you help me move him to the car? It's not his imagination this time—it's acute appendicitis. Another hour and it'll burst."

Gus scrambled out of the car and followed Doc Tandy inside to a dimly lit bedroom. Bill Williams lay doubled up on an old brass-headed bed.

"Ease him into this chair, Gus. It'll be less rough on him than for us to try to carry him stretched out. Move slowly and gently. Okay, easy now...easy...don't try to straighten him out."

Step by step, they carried the sick man to the car, and Doc made him as comfortable as possible in the back seat.

"You drive, Gus. I'll stay back here and keep an eye on him."

Gus turned the car around, and began the nerve-racking business of avoiding every bump in the road without losing time.

"You say we've got only an hour, Doc?"

"That's just a guess. It could last another day without breaking. But I have a feeling it won't take that long. Hope I'm wrong."

"What happens if it does break?"

"Peritonitis, Gus." Doc leaned close from the back seat. "Poison spreads through his whole system. Have to act fast or...well, it can be fatal."

Gus concentrated on his driving and tried not to think about it.

They came to a steep hill a short time later, and halfway up, a cow began crossing the road.

"Probably been standing there all day, waiting for a car to come along," Gus said

wryly, and slowed down. "Never have seen it to fail."

When the ambling animal reached the other side, Gus stepped on the gas, but the surge of power wasn't there. The car faltered and stalled. Gus pulled on the brake, and hit the starter button. The starter failed to work.

"Oh no!" Doc groaned. "Not again! Not at a time like this."

"Had starter trouble before?"

"Yes, once, a couple of weeks ago. Then it went away. I should have known better than to trust it! What are we going to do?"

Gus climbed out and lifted the hood with

nervous fingers. It was a bad time for this to happen, with a sick man in the car.

Gus knew why the car had stalled. He had felt flat spots even in slow acceleration since they left the farm. The carburetor was set far too lean. But that had nothing to do with the starter. The battery was good and strong, and yet, when the starter button was pressed, nothing happened.

"Doc, your carburetor was set too lean. But I can't adjust it until I find out what's wrong with the starter and get the engine going."

Doc shook his head helplessly. He was busy keeping Williams calmed down. Gus

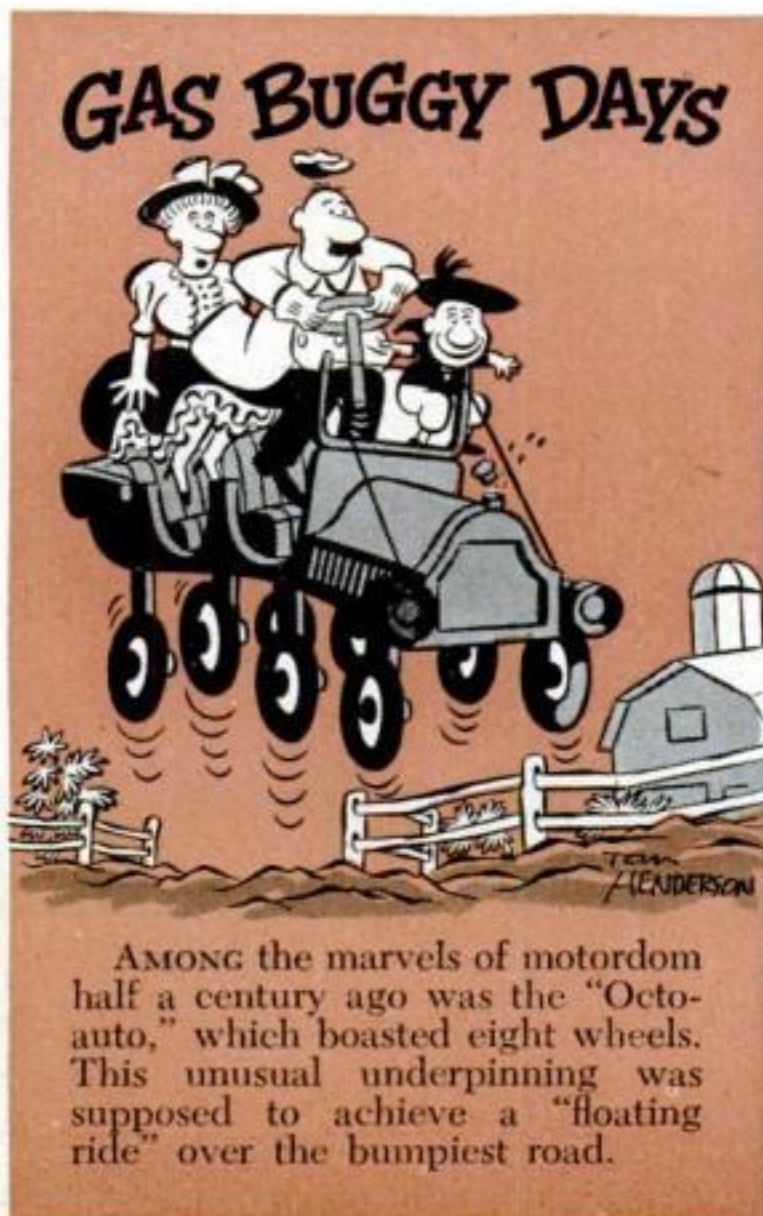
started looking for the trouble.

He examined the starter motor first. No loose connections; no bare wires. Without tools, he couldn't take the motor apart, but from what he could see, and from what he remembered of its sound back in Doc's garage and in the farmyard, there was nothing wrong with it. Starter motors were a pretty durable commodity.

Gus Draws a Blank

He traced the wires to the battery, and still found nothing. From there he went along the maze of wires to the starter button on the dash.

[Continued on page 252]

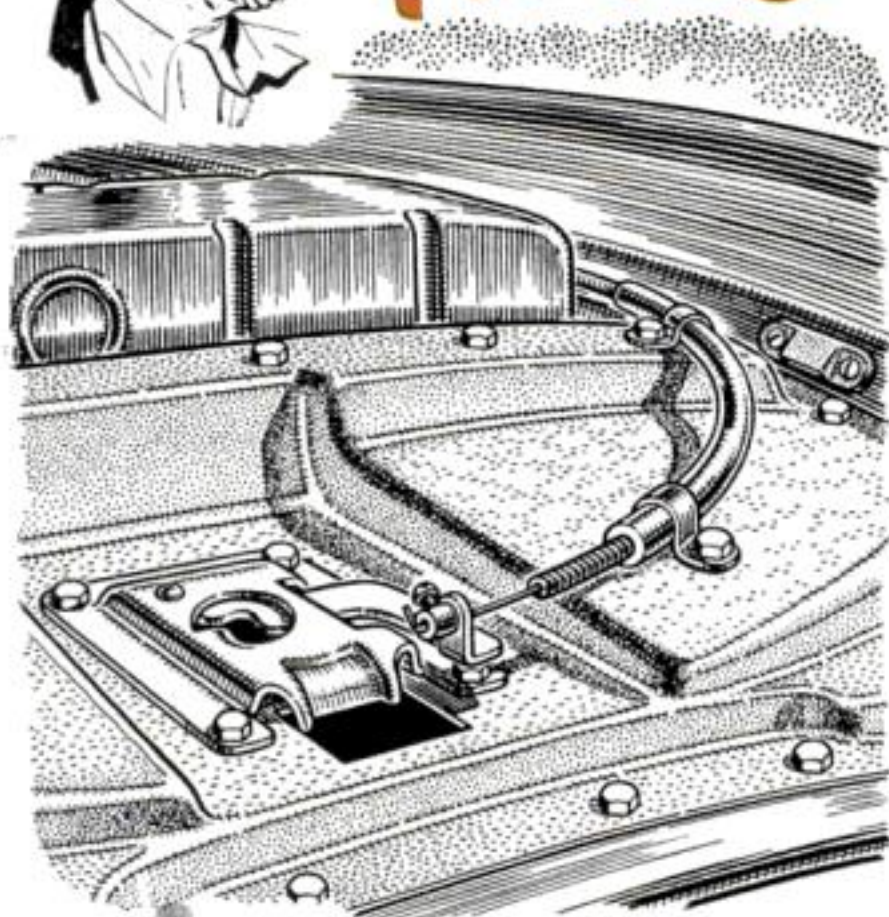


AMONG the marvels of motordom half a century ago was the "Octo-auto," which boasted eight wheels. This unusual underpinning was supposed to achieve a "floating ride" over the bumpiest road.



Hints

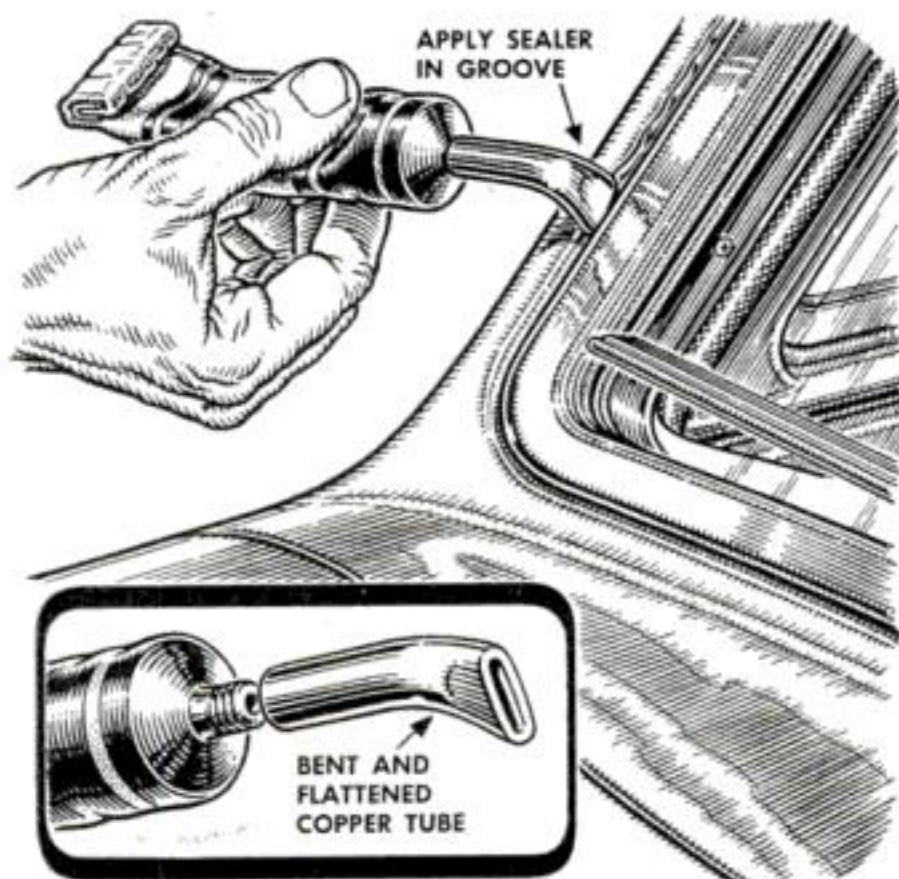
FROM THE MODEL GARAGE



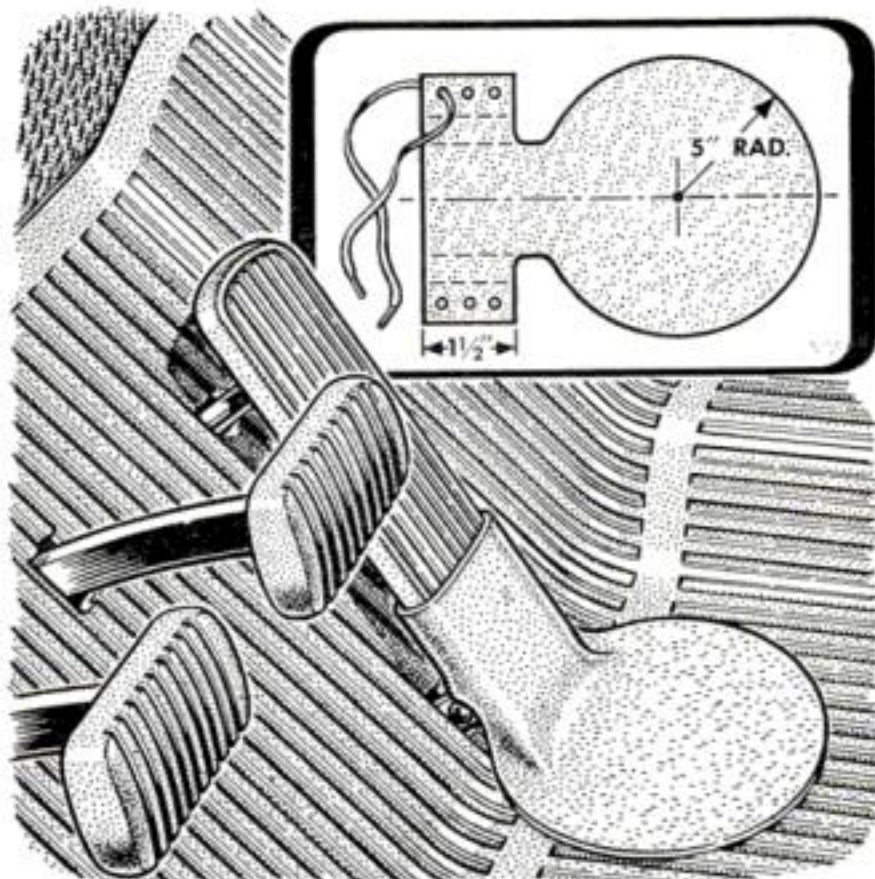
Copper tubing installed as a housing for flexible control cables running to hood-release mechanisms and heaters will eliminate lost motion and buckling. In the case of a hood release, the hold-down bracket can be placed over the tubing.



A tailpipe extension can be made from a piece of radiator hose. Force a piece of hose about 6" long over the end of the tailpipe and apply aluminum paint. Extend the hose beyond the bumper so that the chrome will be protected.



In applying sealer around a windshield, it is often difficult to press the fluid out of the tube without getting it all over the glass. A short piece of copper tubing placed over the end of the spout like this will help you do the job.

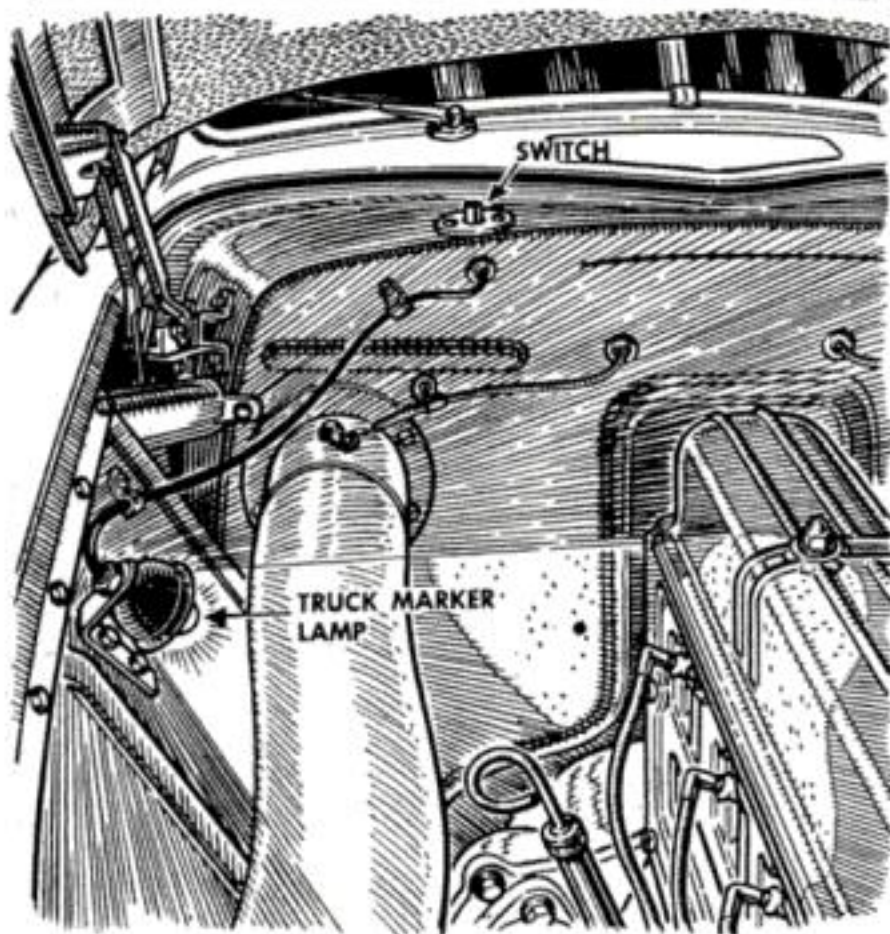


A rubber heel pad attached to the accelerator as shown above will stave off those unsightly holes in the floor covering. The pad can be cut from an old inner tube. Tie the end of it around the base of the accelerator pedal.

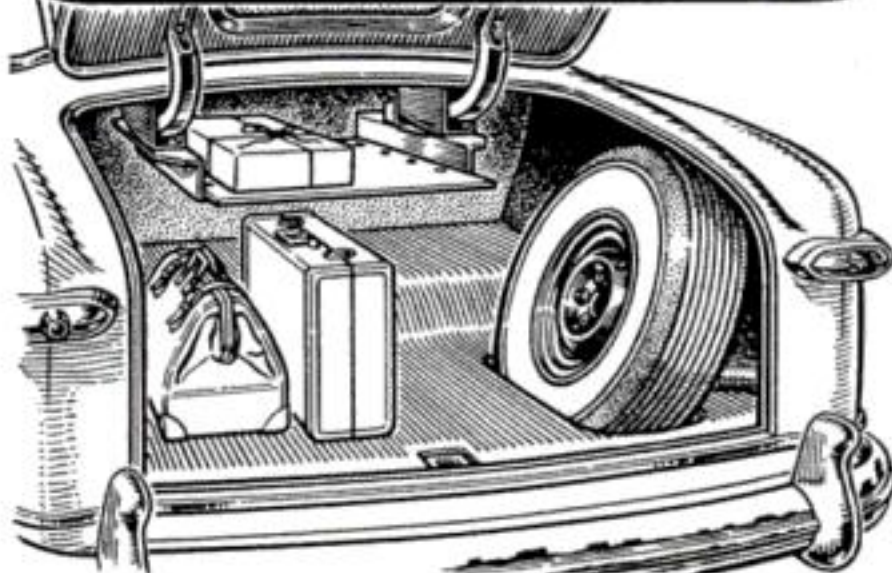
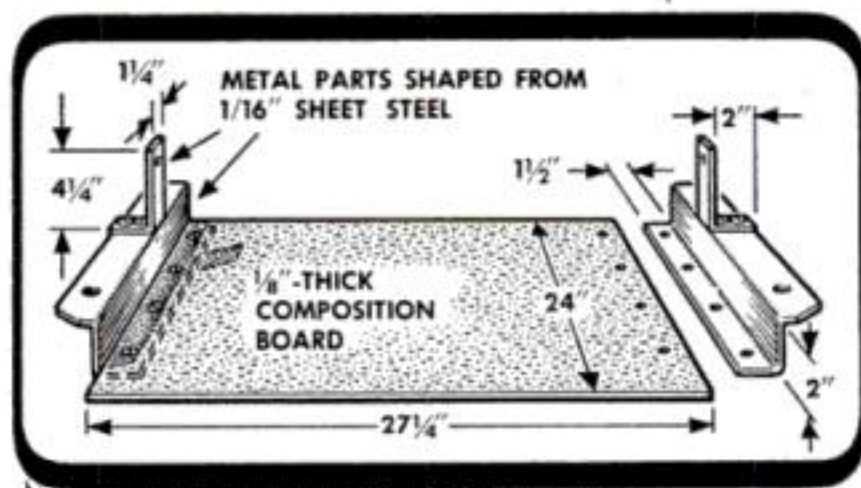
Please turn the page for more auto hints.

MARCH 1953 199

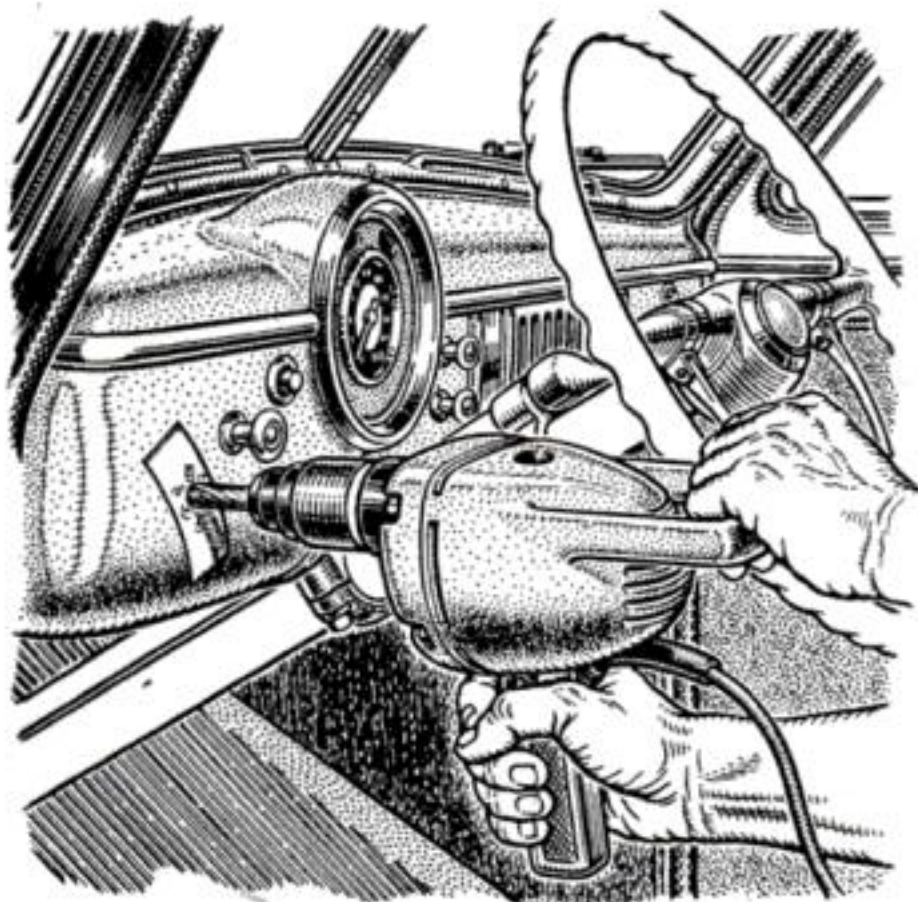
MORE Hints from the Model Garage



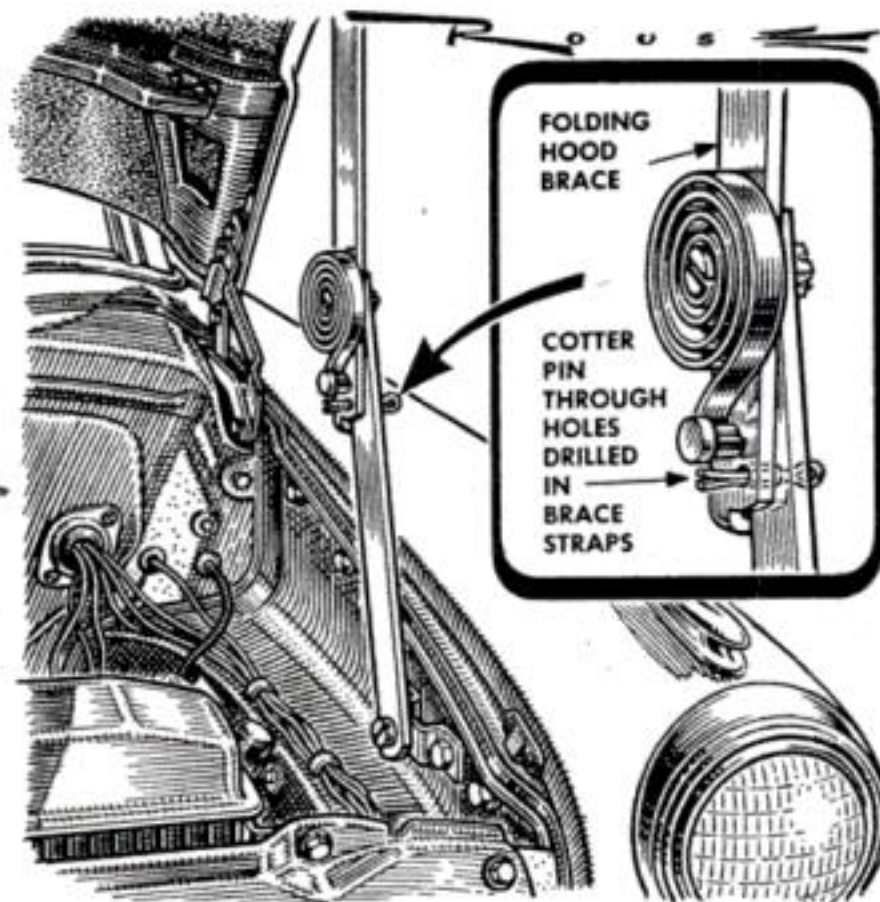
An under-hood light is easy to install. Buy a truck marker lamp from an auto-supply store, remove the red glass and bolt the light to the side of the engine compartment. Aim it to shine on the dipstick. Then mount a car-door switch so that the descending hood will turn it off. Run a lead to a hot wire and the job is done.



Small packages will be kept out of harm's way in a luggage compartment if you build a light shelf like this one. It is attached to the hinge guards by bolts and wing nuts so that it can be removed when you need maximum space. The dimensions given suit a 1951 Ford but can be adapted to other cars. Be sure to leave clearance for trunk lid.



In drilling any part of the car metal to install accessories, first stick a piece of tape over the site of the proposed hole. Then centerpunch the hole and start drilling. With this precaution, the chance of damaging finish around hole is greatly lessened.



A hood that is supported by tension springs may develop a habit of falling when the springs weaken. To make it safe, drill a small hole through the brace straps with the hood up. A cotter pin slipped in the hole will then keep the hood from falling.

shop. For the most attractive results, select boards having a fairly marked grain. Wire-brushing, by carrying away the soft material, will give the surface of the wood a three-dimensional nature.

The process is ideally suited to pine furniture, especially wide expanses such as table tops. It works well on redwood, too, and on practically any lumber you can name. Give the surface a good sanding first to clean it up. But don't fret about small pitch pockets and other defects, because wire-brushing helps hide them.

After you have brushed the entire surface with the grain, sand it lightly and wipe off the dust. Apply a coat of white-pigmented resin sealer (white Rez, white Firzite or the like). Put it on liberally with a brush or rag, let it get almost dry, and then wipe it with a rag, leaving just enough white pigment for a blinding effect. Let this dry for four hours or so.

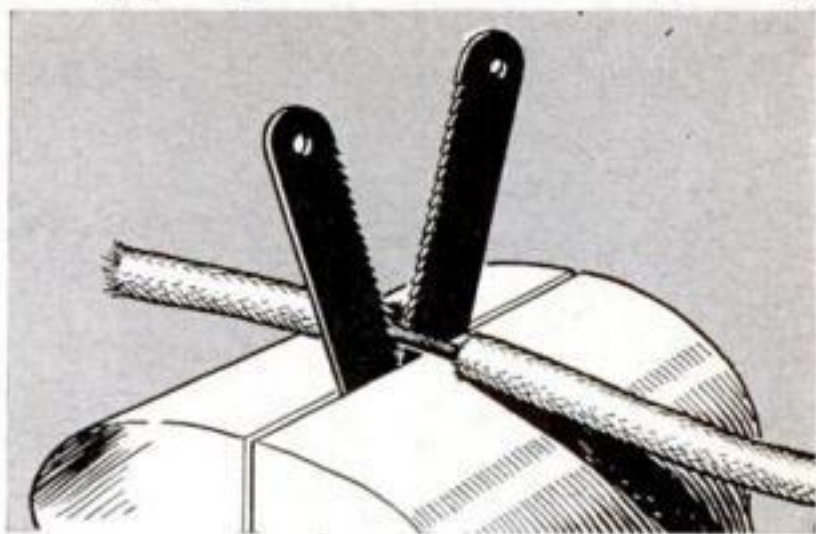
Tinted sealer. For the next coat, add enough raw umber to make the white sealer a soft neutral gray. Apply and wipe this in the same way you did the untinted sealer. You can control the depth of tint by the amount of umber you use and by how soon you wipe. You can also hide defects and uneven color in the wood.

Finally, brush on two coats of clear resin sealer, sanding very lightly before each coat. On woods where you prefer to retain a natural finish, apply two or three coats of water-clear lacquer instead of the sealer.—*Darrell Huff, Sonoma, Calif.*



FINISH SPARKLES after application of filler. If you find this gloss excessive, rub it when dry with oily rag dipped in powdered pumice.

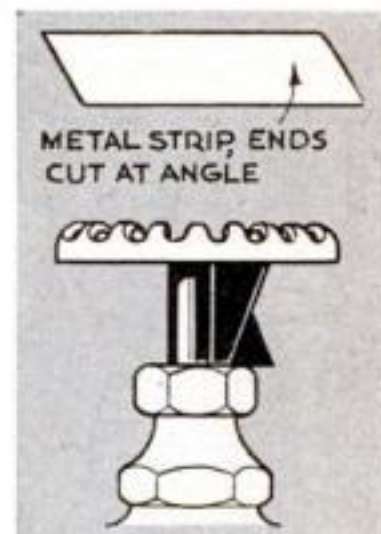
Stripping Wires the Easy Way



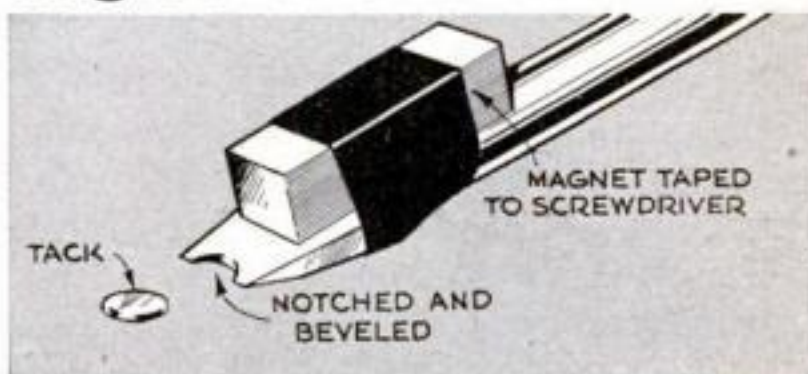
PEELING insulation off the ends of wires is a simple job when you use a broken hacksaw blade in a vise. Lock the blade parts in a vise to form a V but leave a little separation at the bottom of the V. Force the wire down into the V with a twisting motion. This cuts the insulation but doesn't damage the wire because of the separation at the bottom of V. Then pull on wire to strip insulation.—*Hugh Lineback, Stillwater, Okla.*

Safety Catch Fits Valve Stem

TO PREVENT turning off a valve by accident, a lock can be made of scrap sheet metal. This is useful on installations where accidental shut-off could cause damage—such as in the line to a hot-water heater or a refrigeration compressor. Trim a strip of metal so it will just fit on the opened valve stem, and crimp it in place with pliers. When desired, the catch can be easily removed.

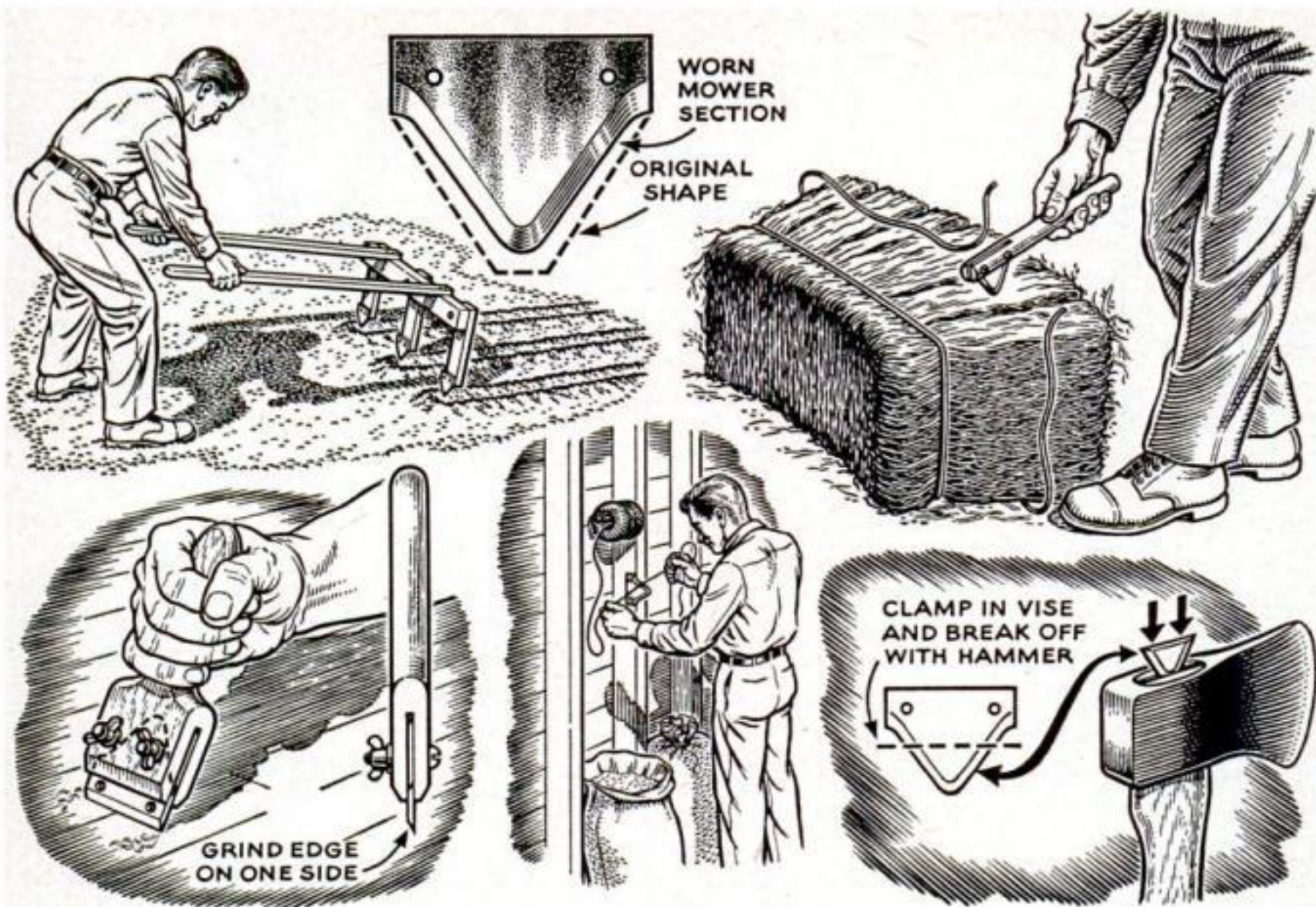


Magnet Holds Removed Tacks



TAPE a small magnet to a tack puller to hold a tack as it is withdrawn. You can make a tack puller from an old screwdriver by sharpening and notching the blade with a file.—*Frank Shore, NYC.*

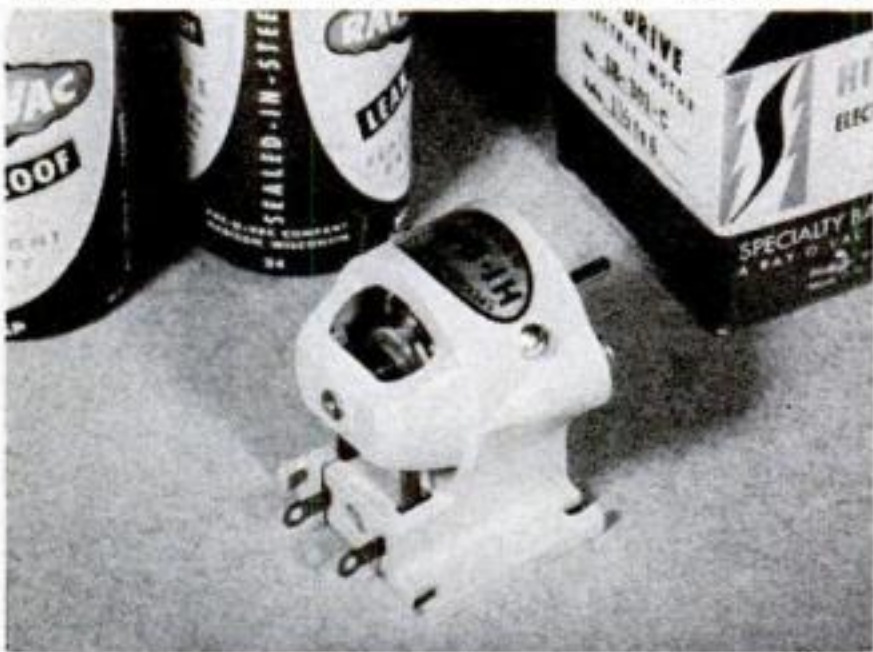
Discarded Mower Knives Can Be Put to Work at Many New Jobs



OUTWORN mower knives, left to rust in many a barn, have lots of salvage uses. They'll make a neat row marker for the

garden, handy twine cutters, cabinet scrapers (grind carefully to hold temper), and ax-head wedges.—R. S. Wilkes, Keuka Park, N. Y.

Tiny Motor Has Carbon Brushes



DESIGNED for models, automatic controls and toys, this new 1½- to six-volt midget motor comes with either phosphor-bronze or carbon brushes. A single screw holds the brush assembly, which is renewable. Bronze shaft bushings are molded into the plastic housing. At three volts, the motor draws .155 amp., running free at 3,900 r.p.m. (bronze), 4,900 r.p.m. (carbon). *Specialty Battery Co., 212 E. Washington Ave., Madison 10, Wis. About \$2.60.*

Cultivator Measures Distance



I USED my hand cultivator, a rag tied to one of its spokes, to measure the distance around the house for building a fence. As I pushed the wheel along the line of the proposed fence I counted its revolutions. The wheel's diameter multiplied by pi, 3.14, gave the distance covered in one revolution.—Hi Sibley, Nuevo, Calif.



An Expert Craftsman Builds a Coffee Table

Let's peer over Shep Shepherd's shoulder and learn a few of the many professional tricks he uses in even a simple woodworking project like this.



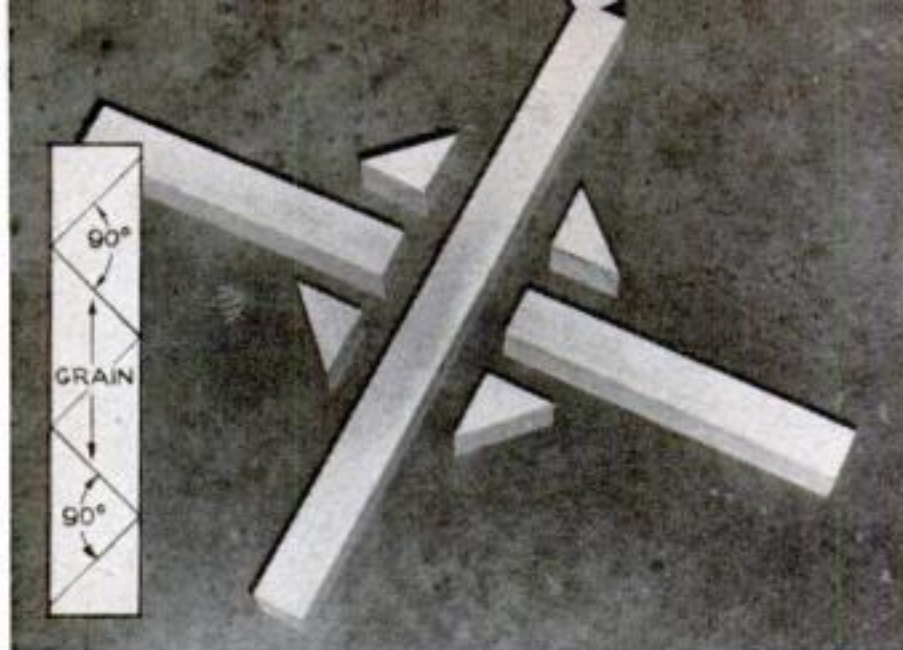
Table top turns like Lazy Susan. Blond finish on ash wood stands out nicely against the dark wall in builder's California home. Turn page to see how it was built with less than \$10 worth of materials (listed at right).

MARCH 1953 209

**JOHN SCOTT
HARDWARE SUPPLY
300 FIRST AVENUE**

30"x30" sheet 3/4" ash plywood
10' 2"x2" ash
9' 1/2" molding
1 3/4" pc. 1 1/4" dowel
3 pcs. 18"x18" hard-surfaced comp. board
2 doz. FH screws 1 3/4" long
4 FH screws 2 1/4"

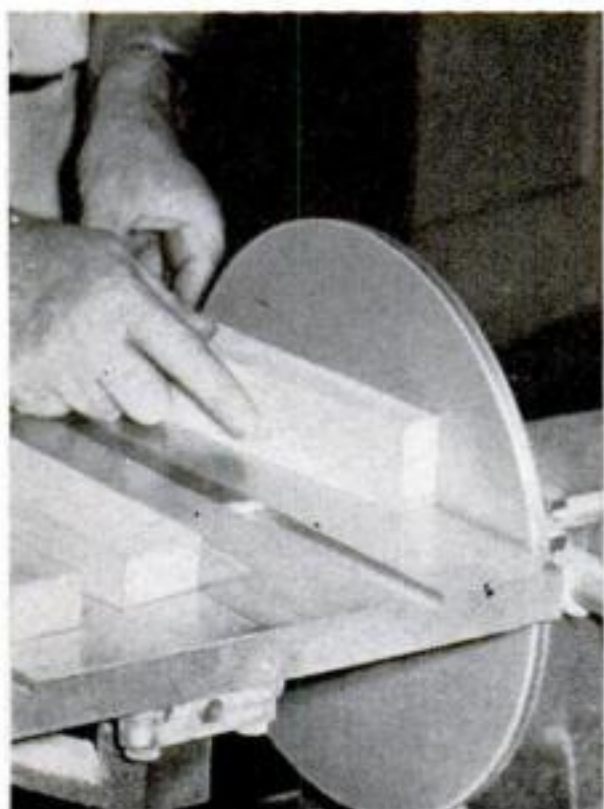
Copyrighted material



1 Seven pieces will form a solid base on which the top can revolve. Cut from nominal 2" by 2" ash stock, these pieces hint at the careful planning that always precedes the start of actual work on a project like this in the Shepherd shop. One piece is 24" long, two are 11½". Sketch shows how to cut corner blocks.



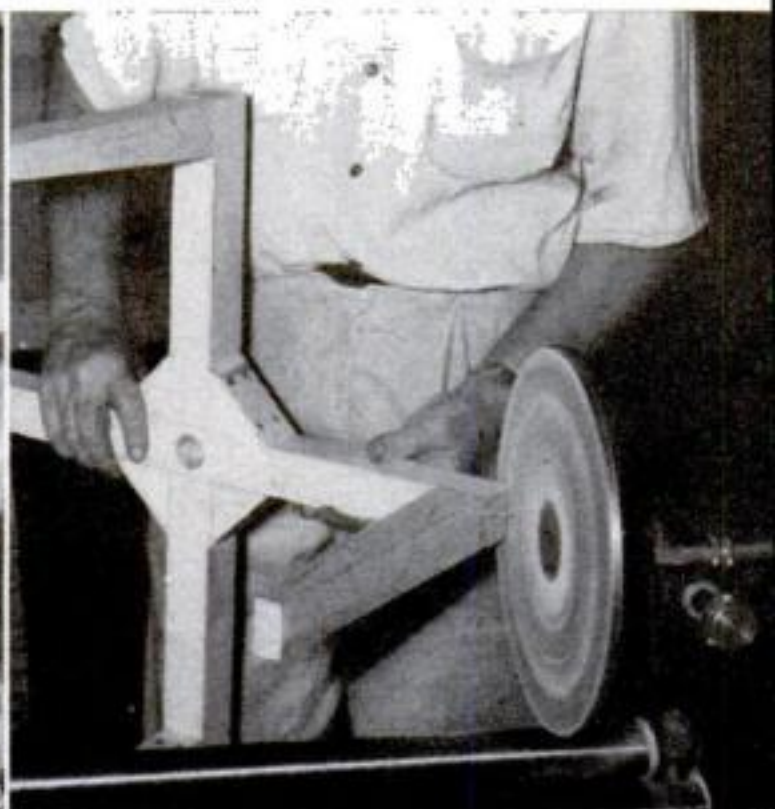
2 Scrap wood lines jaws of machinist's vise to keep 24" stock from being marred while Shepherd bores pivot hole through center. Clamping 1½" by 1½" stock this way also will keep it from splitting while 1¼" hole is being bored. Watcher at 90° angle can help keep bit straight while you bore.



5 Legs are four 12" pieces of two-by-two, tapered to 1" at the bottom. The taper is cut on the table saw and then smoothed off on the sander as above. Holes are then drilled for mounting the legs on the frame.



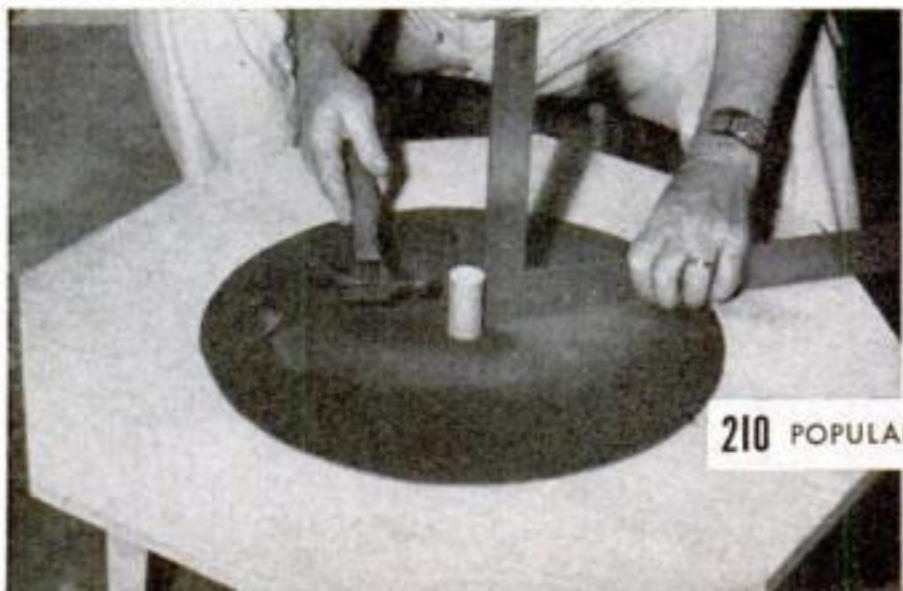
6 Slanting screws 1¼" long attach legs underneath the horizontal part of the frame. Assembly is then reversed in jig and a 2¼" screw run down into the top of each leg. Tapered faces of the legs go on the inside.

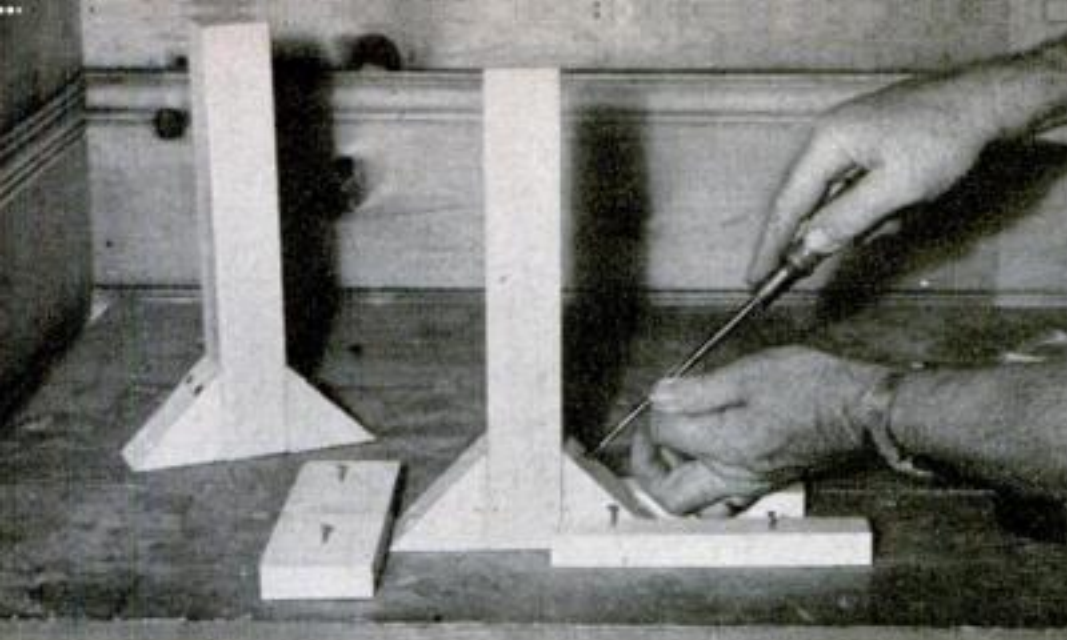


7 Rounding off upper corners of leg assembly to give the table a neat modern appearance is a quick job on disk sander. At the same time the glued joints are smoothed up and the rest of the wood is made ready for final finishing.

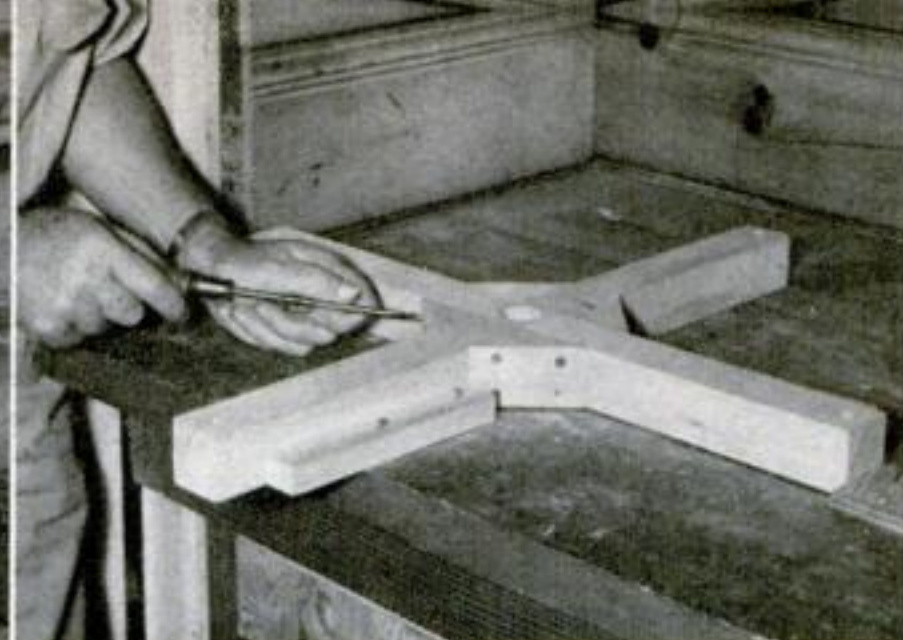
11 Second disk is nailed to underside of the top after dowel has been glued into the blind hole and squared up like this. Small brads also are driven into the dowel at sharp angle through upper surface of top. Third disk simply free-wheels between the other two.

12 Final sanding is done with very fine paper, No. 3/0. Notice the homemade sanding block, a piece of two-by-two with a key wedging the edges of paper into a groove. An assortment of sanding blocks like this is a handy addition to any shop.





3 A jig equals an extra hand and Shepherd uses one every time he can. Here, his jig consists of blocks nailed to the bench top to hold the corner blocks while he fastens them flush with ends of the $11\frac{1}{4}$ " pieces. These will form two arms of the rigid part of the table top. One assembly already is complete.



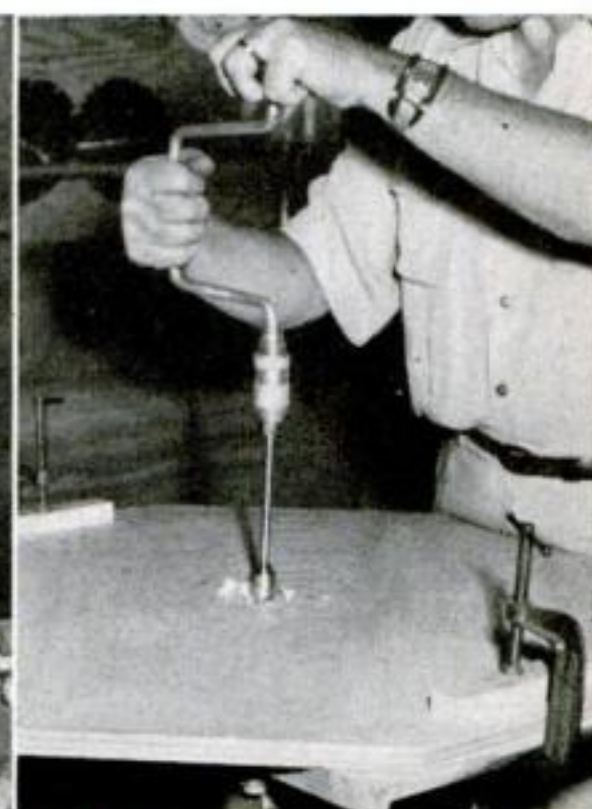
4 And more jigs help him screw the short arms to the center of the 24" framing member. Glue is used between all joined surfaces. Jigs are changed in position to fit each operation. Holes for screws are made with drill press. Here the jig blocks hold the assembly firm while the worker turns in the screws.



8 Three 18" disks are cut from hard-surfaced composition board (smooth on both sides) and $1\frac{1}{4}$ " holes are bored through the centers. With a $3\frac{1}{4}$ " length of $1\frac{1}{4}$ " dowel temporarily in place, one disk is nailed to top of leg assembly.

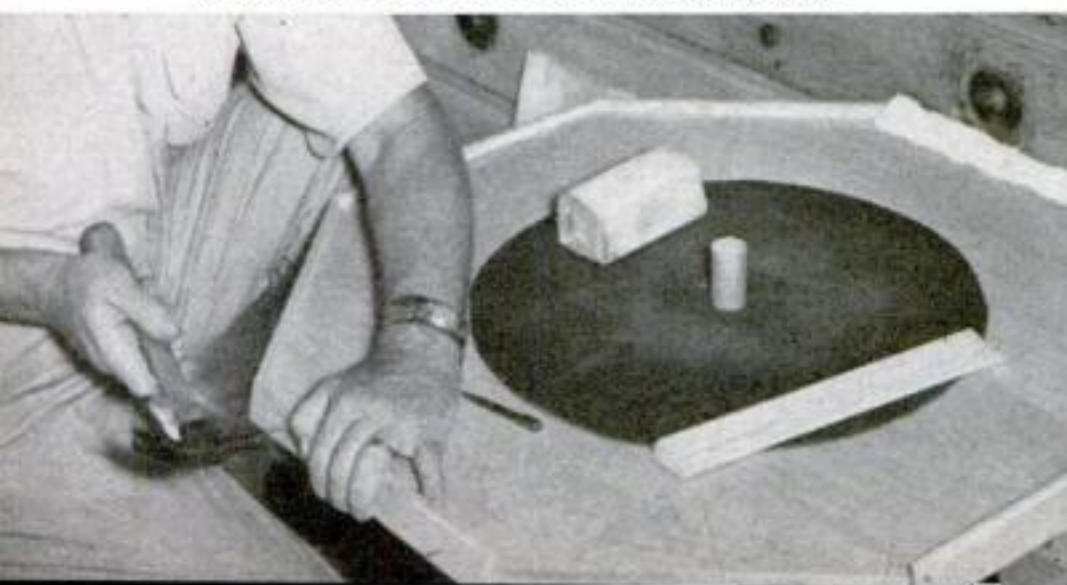


9 Edges of octagonal top each measure $12\frac{1}{2}$ ". Top, made from 30" by 30" piece of plywood, is laid out by marking off $8\frac{1}{4}$ " from each corner on edges, then connecting the points by ruling a line across each corner.



10 A blind hole is bored in center of top for $1\frac{1}{4}$ " pivot dowel. Center position is found by drawing lines from corner to corner across the piece. Hole is bored about $\frac{1}{2}$ " deep. Note blocks to keep clamps from biting wood.

13 Molding now goes on, with the top upside-down on a smooth surface. The $1\frac{1}{2}$ " molding, cut to 13" lengths, is made to fit by sanding a $22\frac{1}{2}^\circ$ miter on the ends. The pieces are attached with glue and finishing nails, which are countersunk and concealed with wood putty.

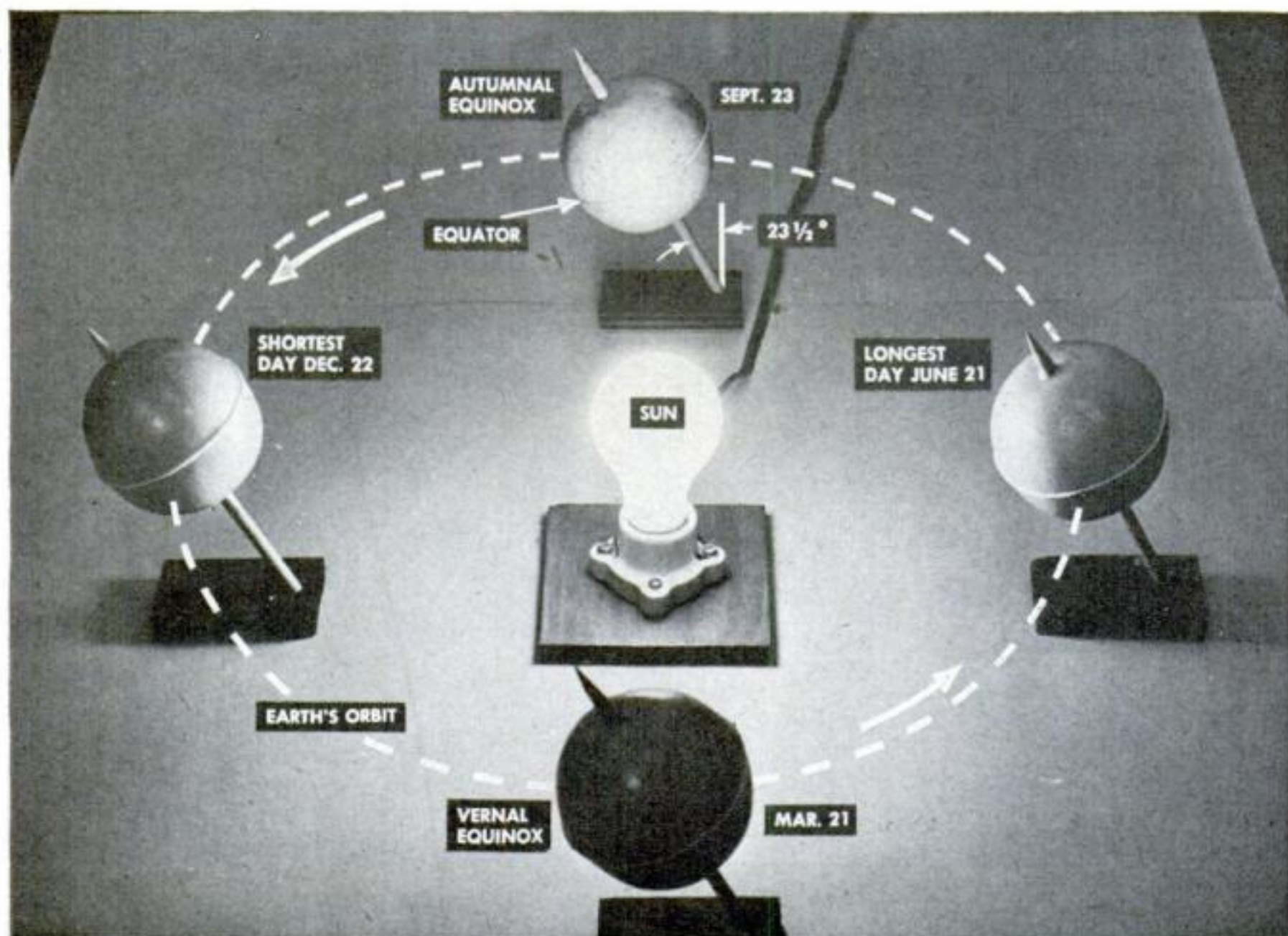


14 Blond finish is achieved by first smoothing out a coat of white filler. After this has dried about 10 minutes, it is rubbed off with a cloth, leaving a certain amount of the white. When filler is dry, white shellac and wax complete the finish.



Why the Days Grow Longer

Approaching the vernal equinox in its yearly orbit, the earth is rolling again into the magic of spring. Ken Swezey's simple stunts will help you understand this and other solar facts.

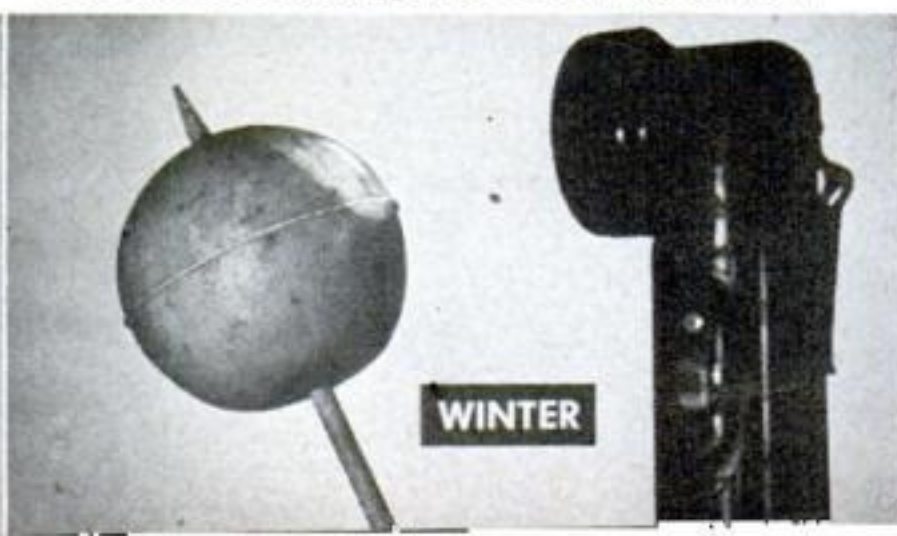
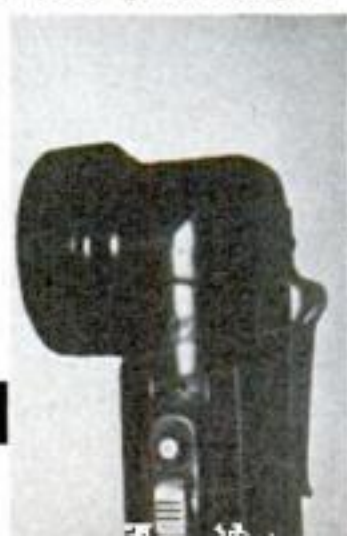


Days are getting longer now because the earth is leaning toward the sun a little more each 24 hours. You can see this by maneuvering an orange on a stick (representing the earth) around a light bulb (representing the sun). Mount the stick so that it tilts $23\frac{1}{2}^\circ$, the tilt of the earth from a line perpendicular to the plane of its yearly travel around the sun. Tie a string around the middle of the orange at right angles to the stick to represent the equator. When the stick

points toward the bulb, the area of light that strikes above the string is large and the days are long. This is summer. As the diagram shows, we now are approaching the vernal equinox. On the vernal equinox and the autumnal equinox, day and night on every part of the earth are of equal length. In the northern hemisphere, the longest day comes in June, the shortest in December. In the southern hemisphere, this timing is just reversed.

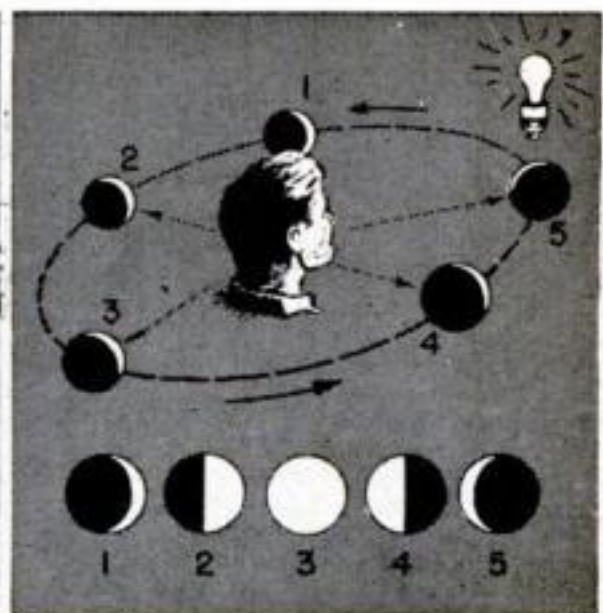
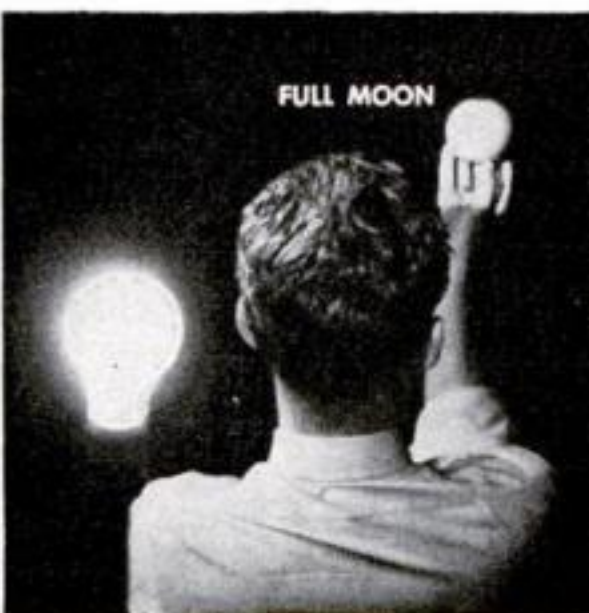
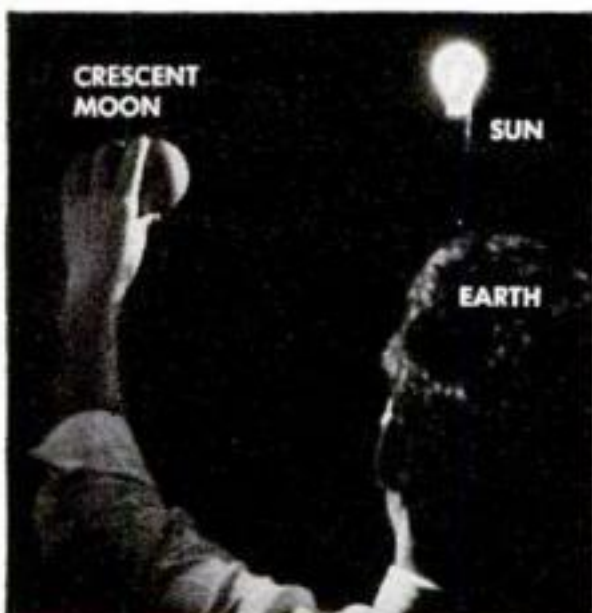
A tilted earth explains why it is warmer in summer than in winter. Lean the orange toward a flashlight held close to it, just as the northern hemisphere leans toward the sun in summer. You will see that the beam hits the area above the equator squarely, producing a concentrated disk of light. Direct rays from the sun, plus longer

days, produce summer heat. Now lean the orange away from the light, as the northern hemisphere leans in winter, and raise the light so it again strikes above the string equator. You now see that slanting rays from the sun, combined with shorter days, account for winter cold. The southern hemisphere then has summer.



Finding your latitude. Latitude is merely your distance, measured in degrees of angle, north or south of the equator. You can find it with a crude quadrant assembled by gluing a dime-store protractor on a rectangle of cardboard. Align the straight edge of the protractor with the long edge of the cardboard sheet. Suspend a weight on a string pivoted to a thumbtack at the center. Run two small screw eyes into the top of the board to serve as sights.

On a clear night, sight through the screw eyes at the North Star. When the star is aligned, hold the thread against the protractor and observe where it crosses the scale. This number represents the angle the North Star makes with the horizon. Since the angle of this star at the equator would be almost zero and at the North Pole 90° , it can be seen that this number also represents the latitude of the observer.



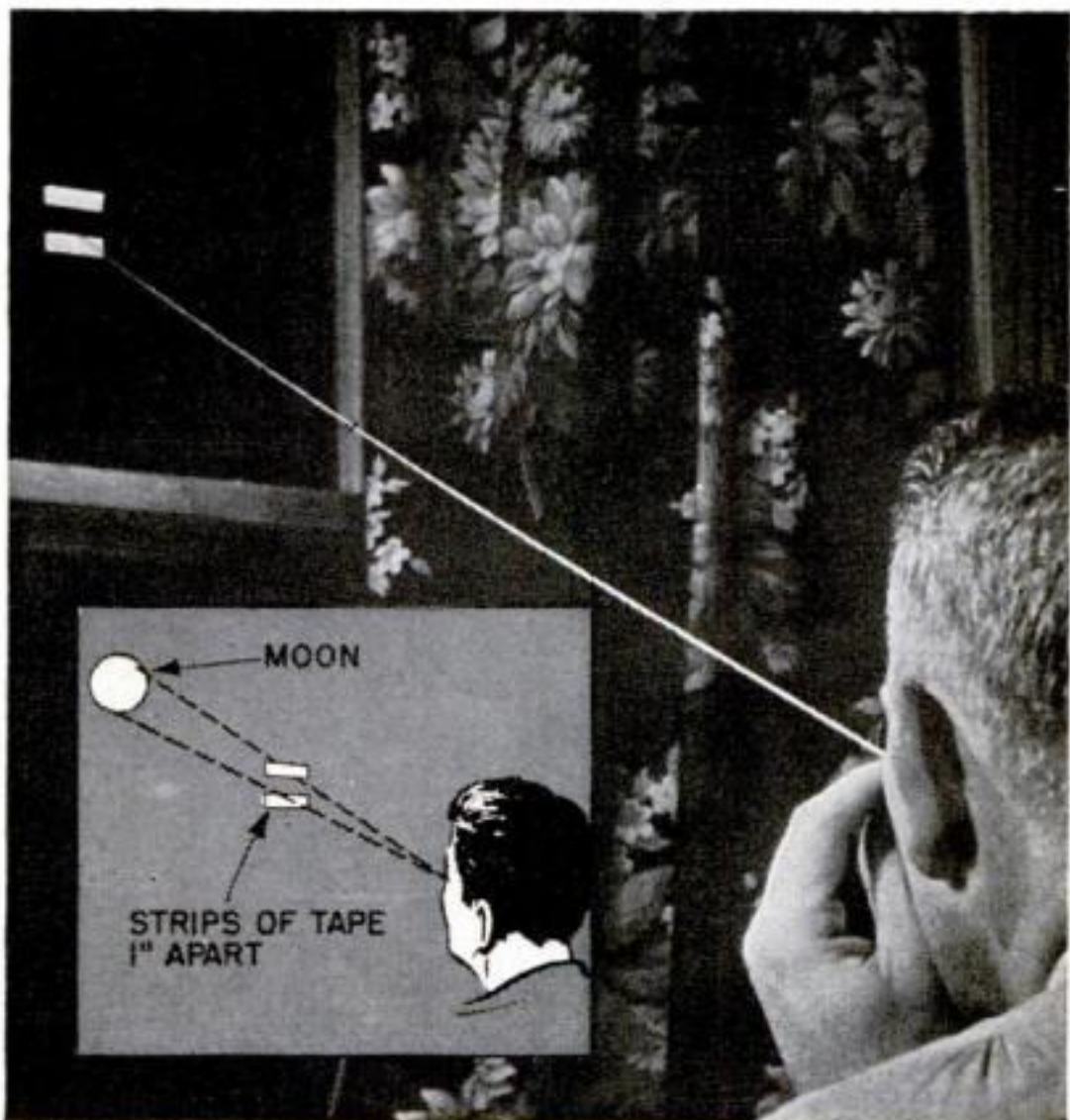
Phases of the moon will no longer be a mystery once you have duplicated them with an orange and light bulb. This time, let the orange represent the moon, your head the earth, and the bulb

the sun. Turn counterclockwise so the orange goes around your head with the light stationary and you'll see all stages of the moon as indicated in the sketch above.

How to measure the moon. At about the time of the full moon (Feb. 28 and Mar. 30), fasten two strips of adhesive tape exactly 1" apart on a window pane through which the moon is visible. Under the lower strip anchor one end of a long string. Then, holding the other end of the string, sight the moon between the tapes, moving backward or forward until the moon precisely fills the space between the tapes. At this point, pull the string tight and mark it where it touches your eye. Then measure the distance from the tapes to the marked spot.

Although the moon is about 239,000 miles away, you can now determine its diameter by a simple calculation. The moon diameter bears the same proportion to its distance to the earth as the distance between the tapes bears to the distance to your eye. If your eye is, say, 110.5" from the tapes (110.5 times the distance between them), then the diameter of the moon is 239,000 miles divided by 110.5. This turns out to be 2,167 miles, which is quite close. Astronomers usually list the diameter of the moon as 2,160.

END

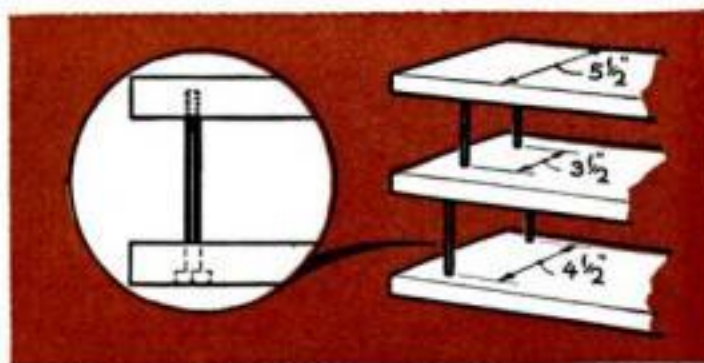


One Evening Shop Projects

The humble bolt turns scrap-box lumber into fancy furnishings for your home.



Pots of ivy look fine on this triple shelf. It is made of three pieces of $\frac{3}{4}$ " oak $5\frac{1}{2}$ " wide arranged in step fashion. Eight $\frac{1}{4}$ " bolts 6" long hold the shelves together. The holes were all bored slightly less than $\frac{1}{4}$ " so that the bolts would be a tight fit. The holes were countersunk under the two longer shelves to take the bolt heads. Make the shelves any length.



CHARLES AND MARION SCHROEDER of Mundelein, Ill., saw beauty in a strictly utilitarian hunk of hardware—a bolt. As their handsome projects here prove, they were right. The black-painted bolts make a striking contrast to the natural-finished hardwood parts.

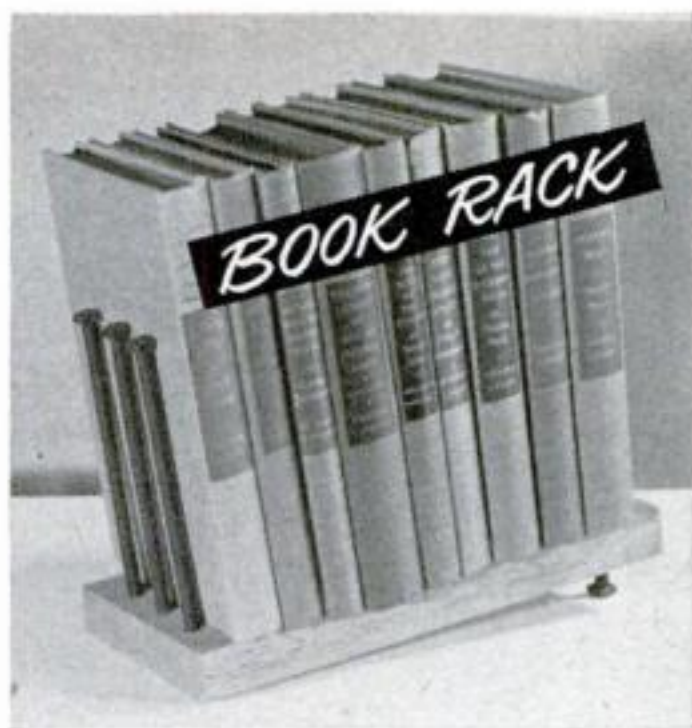
Carriage and machine bolts are available at large hardware stores in diameters up to $\frac{3}{4}$ " and lengths to 20". They are simply threaded or press-fitted into holes drilled in the wood. Make test holes in scrap to be sure you are using the best drill.



A decorative tile resting on this small stand serves as a hot plate for a tea party. It consists of a wood base sawed to the size of the tile, and four $\frac{1}{4}$ " by 6" bolts screwed into each of the four corners at a 60° angle. Use a drill a bit less in diameter than the bolt to insure a tight fit. A drill press will simplify such angle drilling. If you must use a brace or hand drill, first make a guide hole at the proper angle in a block of wood and use this block as a jig by clamping it on the wood to be drilled. Screw all bolts into the holes the same distance to level the tile.



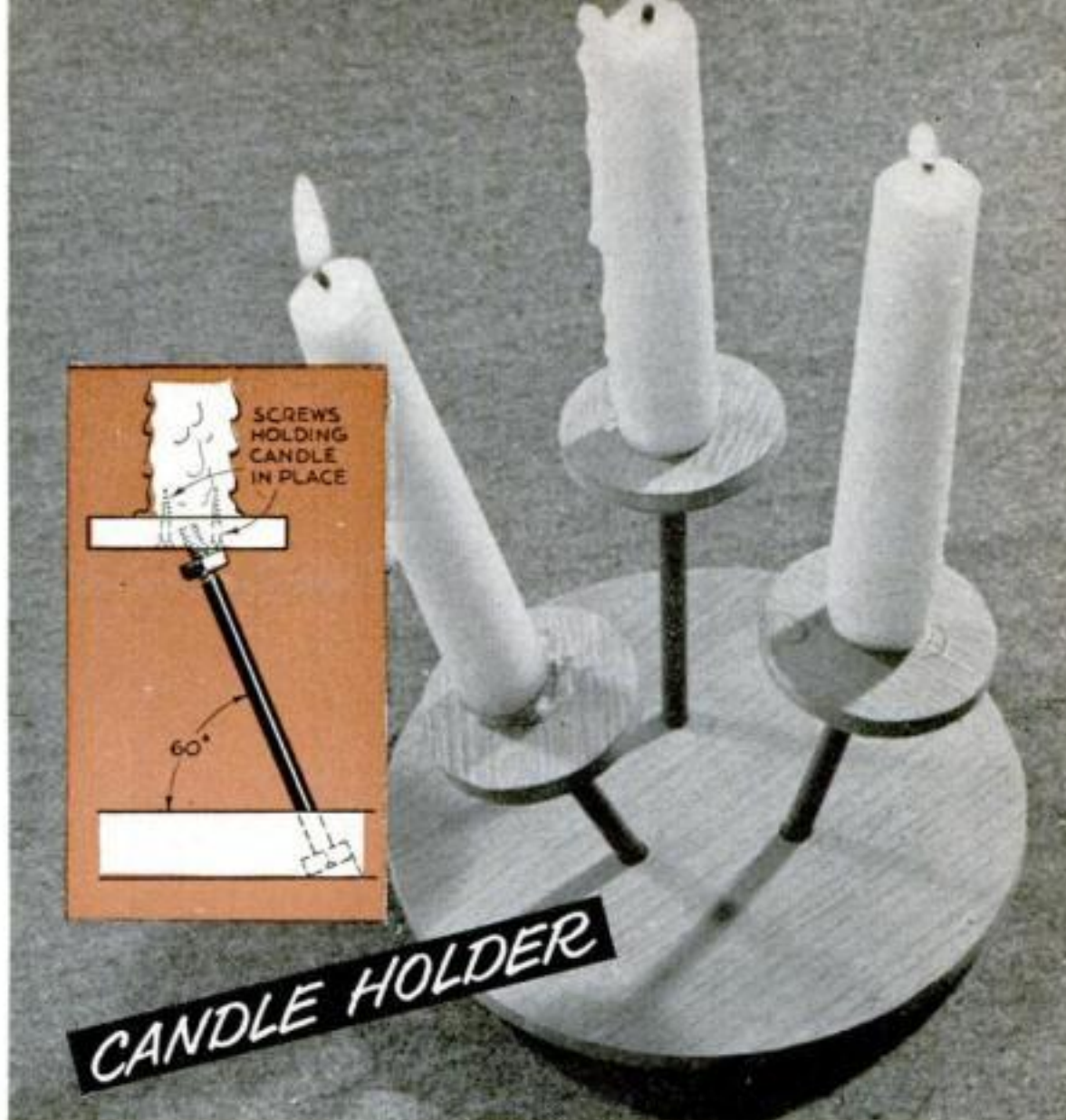
For digest-size publications, use $\frac{1}{4}$ " by 6" bolts placed at 70° angles along two sides of a piece of hardwood. This makes a table rack; for a floor rack for large magazines, use $\frac{1}{2}$ " by 16" or even larger bolts in a base about $1\frac{5}{16}$ " thick. Be careful to drill all holes at the same angle; a simple jig will make sure they are right.



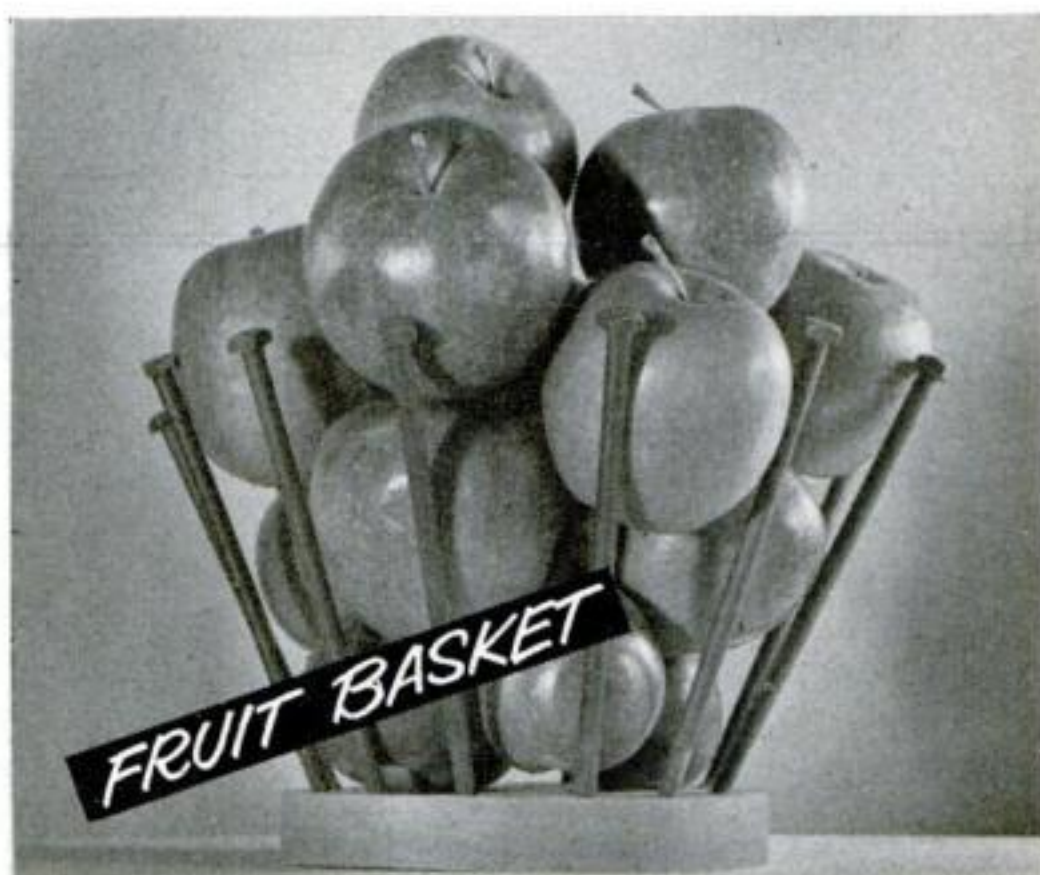
A simple book rack that you can complete in a few minutes is shown here. Drill three $\frac{1}{4}$ " holes $\frac{1}{2}$ " in from each end of a piece of hardwood $\frac{3}{4}$ " by $5\frac{1}{2}$ " by 12", spacing them evenly between the sides. Turn three $\frac{1}{4}$ " by 6" bolts into the holes at one end. Turn three $\frac{1}{4}$ " by $1\frac{1}{2}$ " bolts into the holes at the other end—from the opposite side of the board—to serve as legs for the rack. That's it.



A light seat next to the TV set makes it more comfortable to twiddle the controls. Here it is—a 12" equilateral triangle cut from 1" stock with angled legs of $\frac{1}{2}$ " by 16" carriage bolts. Screw the legs into holes drilled at 60° angles into the two thicknesses of wood at the corners. Glue the corner blocks into place under the top.



Candle holder. The materials necessary for making the holder are a 5" disk of $\frac{3}{4}$ " stock and three $1\frac{1}{2}$ " disks of $\frac{1}{4}$ " stock, plus three $\frac{1}{4}$ " by 3" machine bolts. Scribe a 3" circle in the center of the large disk. At three equidistant points along its circumference drill three $\frac{1}{4}$ " holes at angles of 60°. Counterbore the holes underneath the disk to take the bolt heads. Run the bolts through and turn them into holes drilled in the small disks. Two screws anchor each candle.



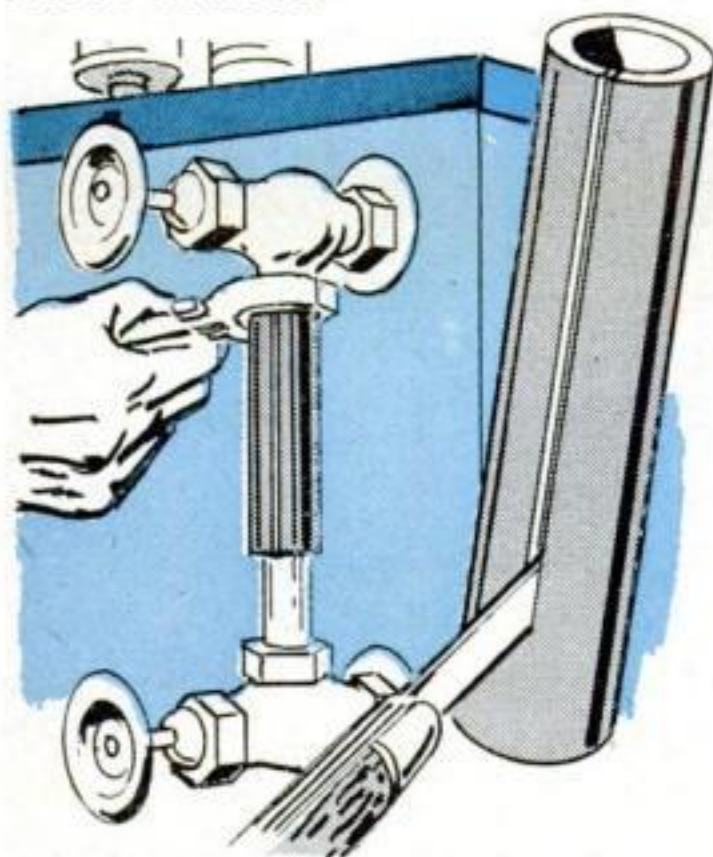
Modern apple basket. Take a 6" disk sawed from $\frac{3}{4}$ " stock, bore a dozen $\frac{1}{4}$ " holes around the edge at an outward angle of 70°, turn in a dozen $\frac{1}{4}$ " by 6" bolts, and you've got it.

KEEPING THE

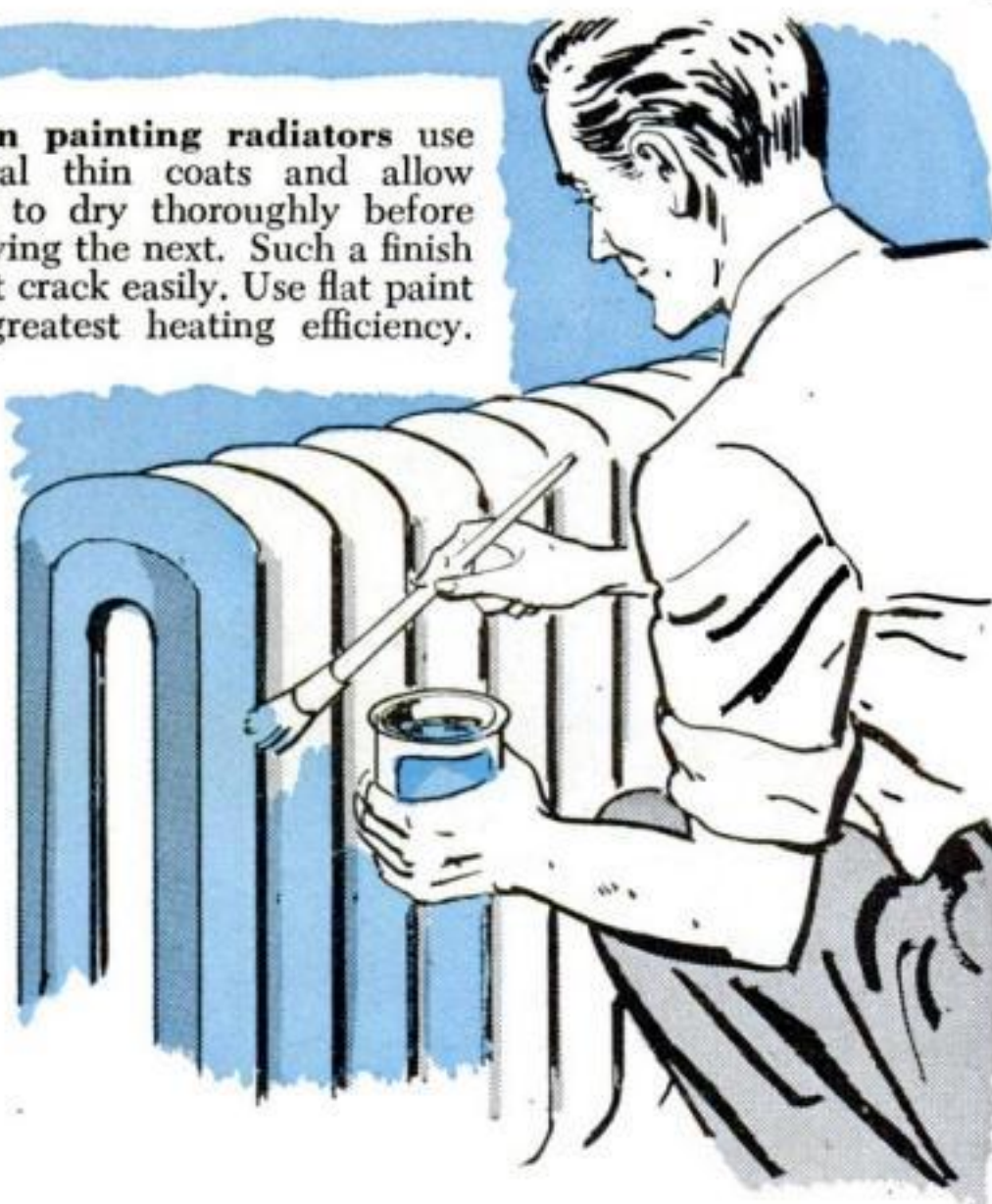
Home

SHIPSHAPE

When painting radiators use several thin coats and allow each to dry thoroughly before applying the next. Such a finish won't crack easily. Use flat paint for greatest heating efficiency.



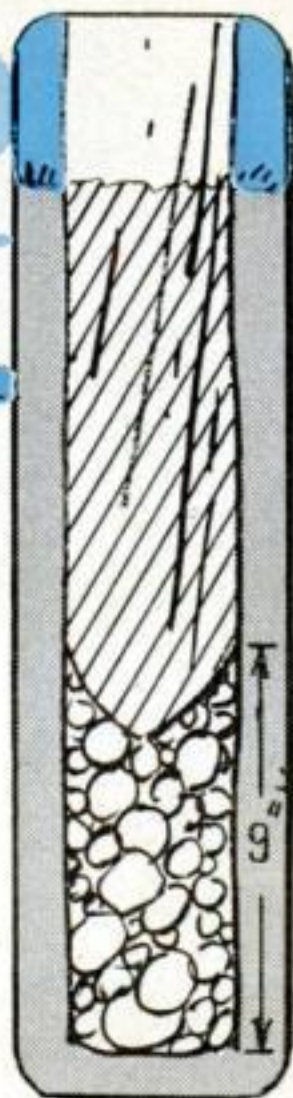
Protect a gauge glass from breakage when doing a replacement job. Cover the end where the wrench is applied with a slit length of rubber hose to cushion it if the tool slips.



Gravel walks or driveways will stay free of grass and weeds longer if they are laid over a base of coarse rock salt.



Fence posts last longer if set in well drained post holes. Holes dug about 9" deeper than necessary and lined at the bottom with stones will let water run off faster so wood is less apt to rot.



To protect wallpaper while you paint the woodwork, use a yardstick as a shield. A screen-door handle screwed to the stick makes it easier to hold and keeps paint off hands.



Save those old porch pillars and ornate balustrades. Cut down, they make handsome table pedestals and lamp bases. Split down the middle, they form wall brackets or pedestals for wall-hung console tables.



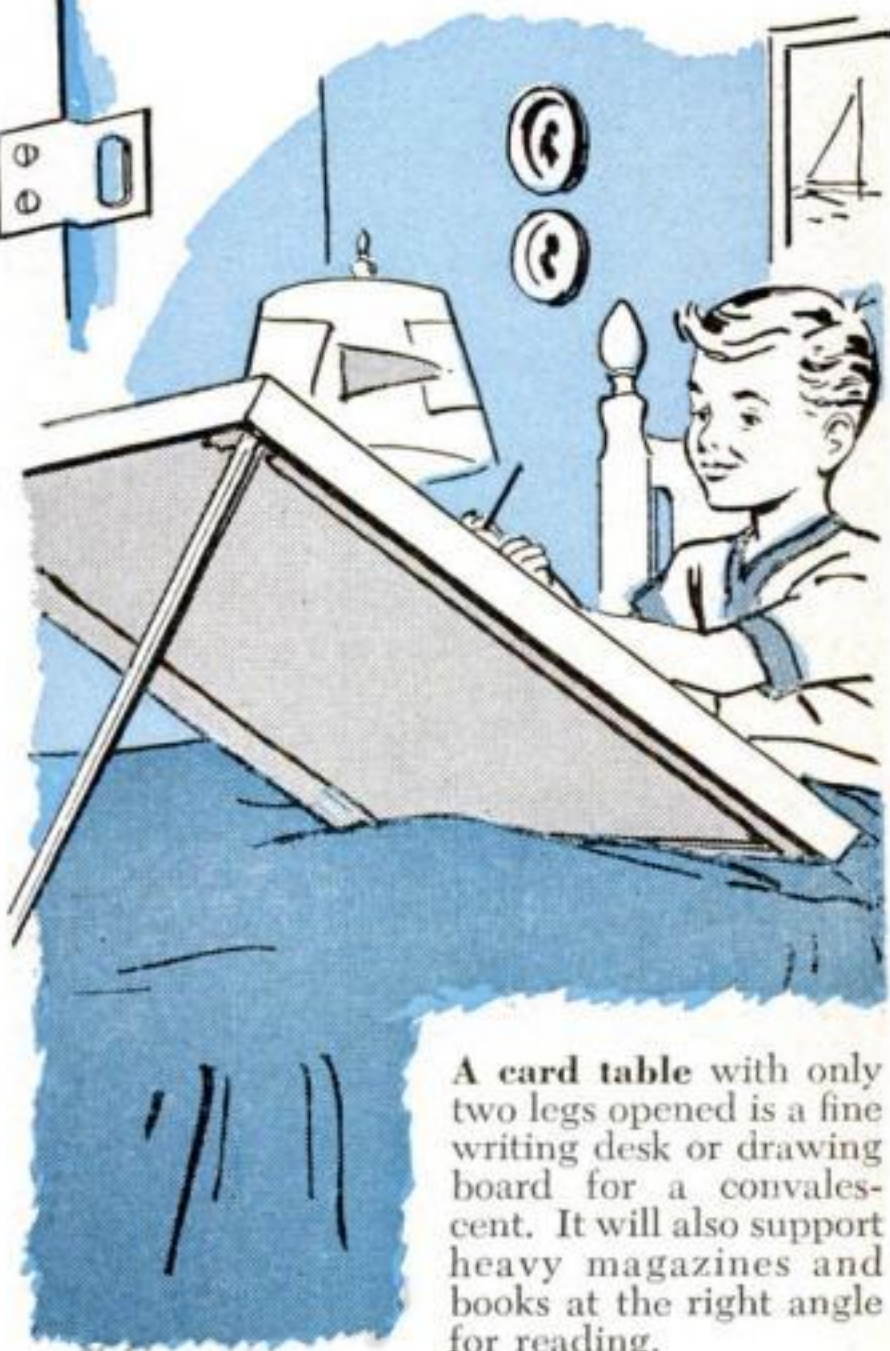
Storm windows leave paint marks on window frames? Before storing them, sand to the bare wood where they hit frame and coat with two parts boiled linseed oil, one part turpentine. Repeat in the fall.



A lower closet rod will bring clothes down within a child's reach. Two wire hangers straightened and inserted through holes in a piece of broomstick will do the trick.



The spring cleanup goes faster if you have a metal snow shovel handy. Its broad surface will lift quite a pile of debris with one scoop.



A card table with only two legs opened is a fine writing desk or drawing board for a convalescent. It will also support heavy magazines and books at the right angle for reading.

Motor-Driven Cruiser Built from Tin Cans



You don't have to be a sheet-metal expert to fabricate this trim craft of tin plate salvaged from oil and antifreeze cans. You just cut the sections from patterns and solder them together.

By Gus W. Hall

THE lowly tin can, regarded by most craftsmen as good for goats and nothing else, is just about all the material you need to build this slick model cabin cruiser. The smooth lines of the boat prove at a glance that tin cans can be as valuable in the workshop as they are in a supermarket.

Hull. Cut out the four main parts and assemble the hull as shown in the photos, using drops of solder spaced at $1\frac{1}{2}$ " intervals. When completely fitted and spot-soldered, lay a continuous bead of solder along all the seams to make the hull watertight.

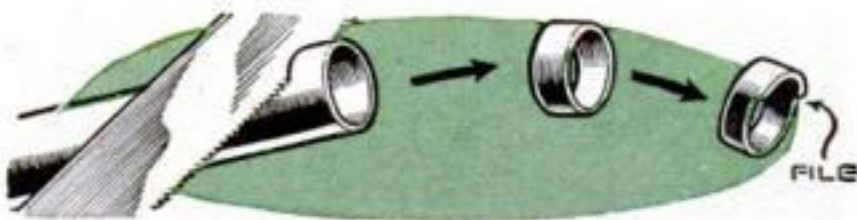
Cradle. Before you complete the boat, it's a good idea to make a stand to support it. The cradle above was built up of $\frac{3}{8}$ " and $\frac{1}{8}$ " brass tubing, using the hull to determine the shape of the cross members. A hardwood cradle, like the one at left, may

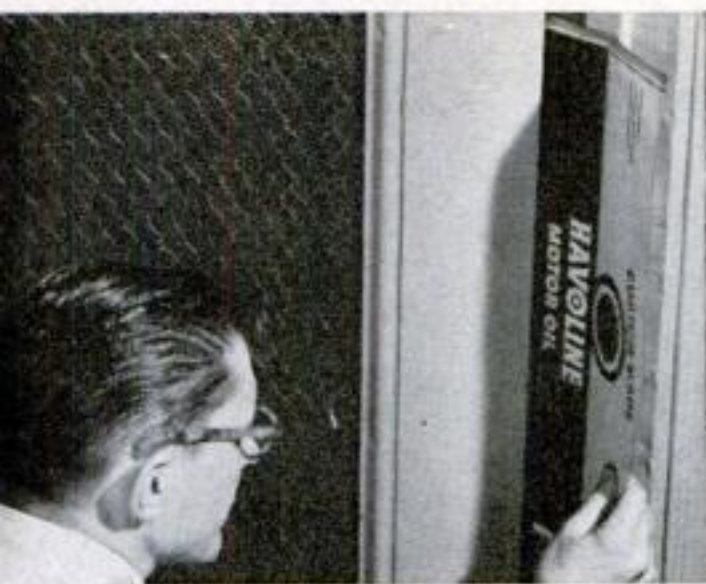


be easier to make and is equally impressive if finished nicely.

Decks and coamings. Solder the forward deck to the hull after cutting out the hatch opening, then add the side and rear decks and coamings. Note that the side decks and coamings are cut from the same pattern, but bent in opposite directions to produce the port and starboard sides. The lower frame of the windshield is actually part of the continuous coaming, so solder it across the forward deck and file all edges even.

Porthole frames. Cut these from $\frac{1}{2}$ " outside-diameter brass tubing, and file the lower half of each frame to form a drip guard. Smooth the outer edges with fine

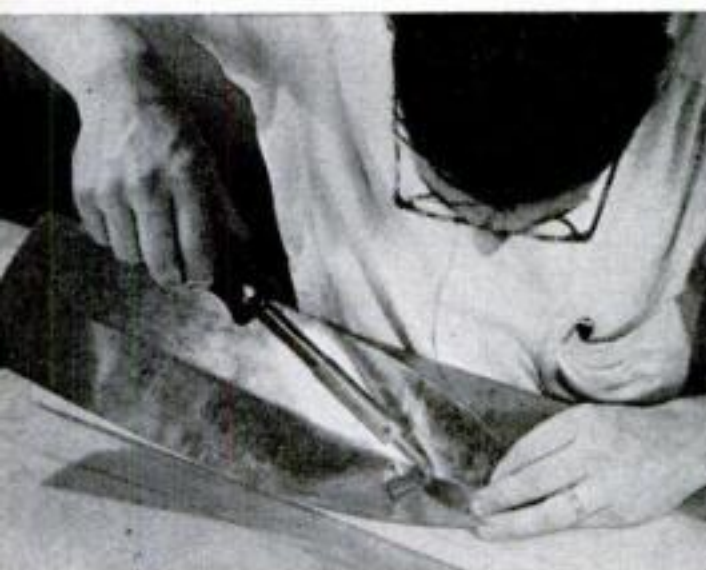




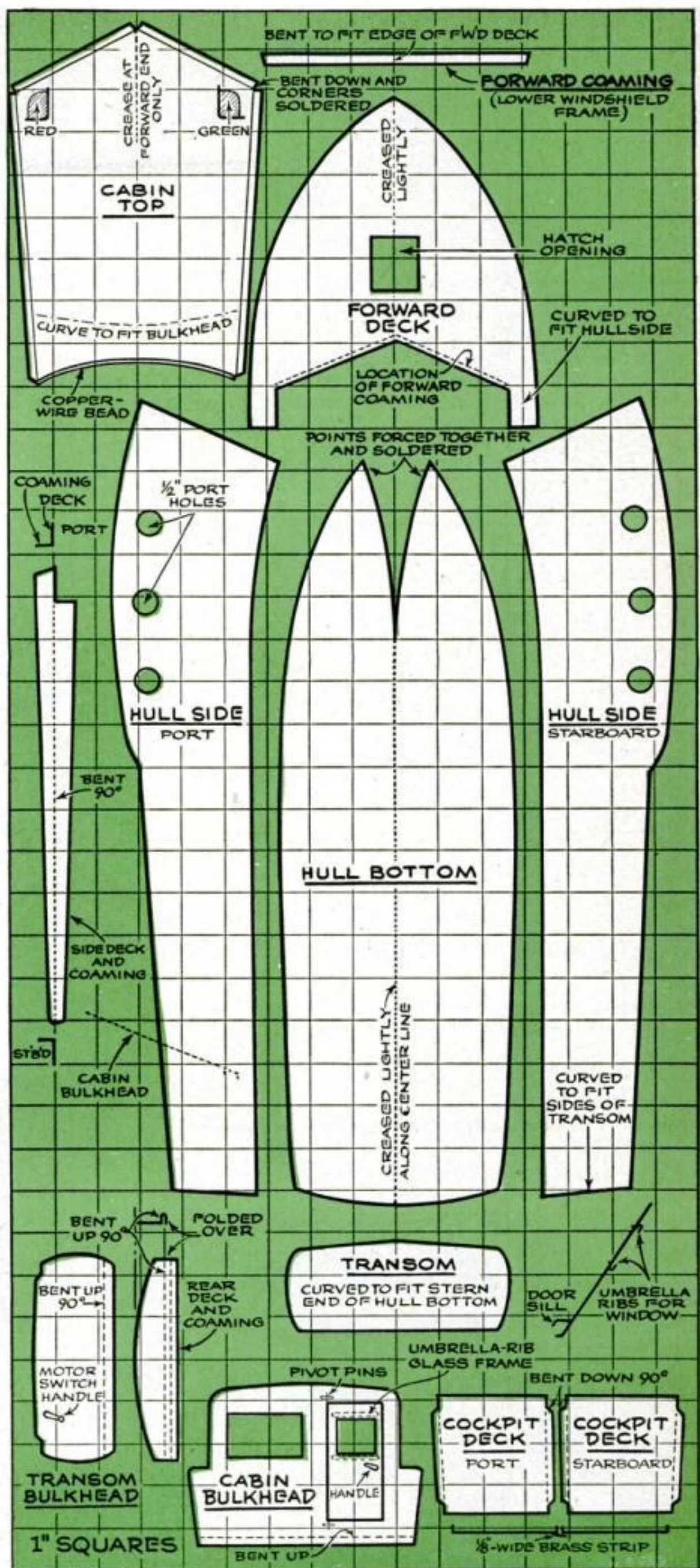
DOOR IS BENDING BRAKE to put sharp, straight crease in tin for hull bottom. Paper template is then pasted on, aligning centerline with crease. Sheet of tin shown was salvaged from round five-quart oilcan.



TIN SNIPS are most important shaping tool; good soldering iron is also needed. Hatch opening is started by driving large nail through tin and gradually working snips around until cut is completed.



HULL BOTTOM is formed by bringing two bow points together and tacking them with drops of solder spaced about $1\frac{1}{2}$ " apart. Fine sandpaper is used to clean lacquer, lining or paint off meeting edges.





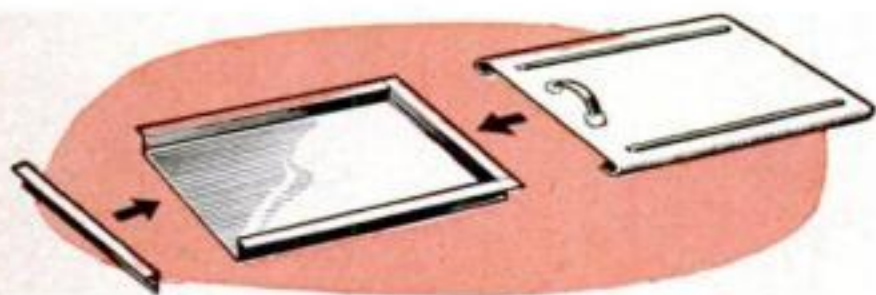
HULL SIDES are cut out and portholes punched with gas-ket cutter. A $\frac{1}{2}$ " radio-chassis punch could also be used, or, lacking both, an undersize hole can be drilled and the portholes filed to a scribed circle.

SIDES ARE JOINED to bottom by tacks of solder. Joint is started at bow, and sides are curved to fit bottom as work proceeds toward stern. Slugs of solder (foreground) are placed on seam, leaving hand free.

FORWARD DECK is added after sides are joined at bow and hull begins to take shape. Writer found that acid-core solder was best when soldering on outer painted surfaces; rosin-core solder was used on inside.

steel wool and solder them into the porthole openings.

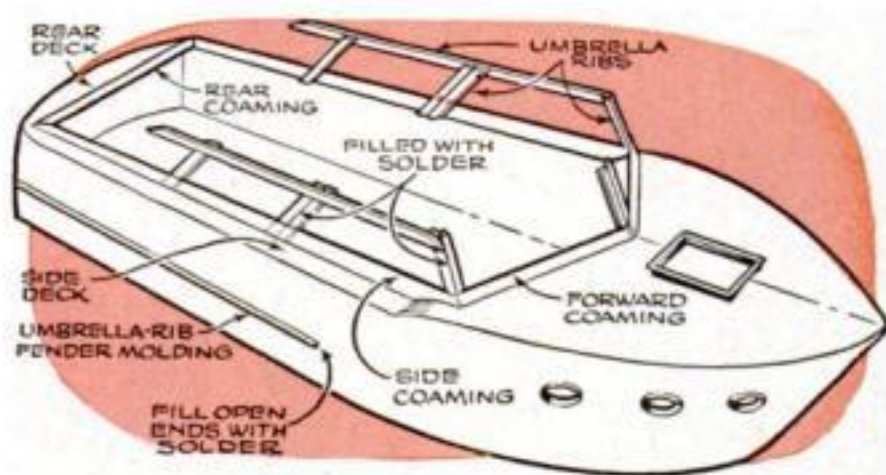
Forward deck hatch. Frame the hatch



opening with $\frac{1}{8}$ " by $\frac{1}{8}$ " brass angle, soldering from beneath the deck for a neat job. Bend the hatch cover from a scrap and trim with two stiffening ribs and a wire handle.

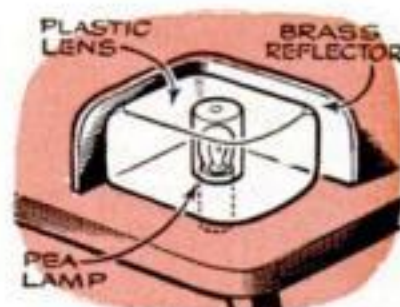
Cabin. Solder short pieces of umbrella ribs to the side coamings and bridge them with long headers as shown in the assembly drawing. Cut the cabin top and bend down the flanges on both sides and the front. The side flanges snap into the headers and the front flange completes the windshield frame.

DETAILS ARE MADE from common materials—copper wire, brass angle, tubing and umbrella ribs. Note how umbrella ribs, soldered back-to-back, form neat window frames. Hatch cover slides on frame of brass angle.

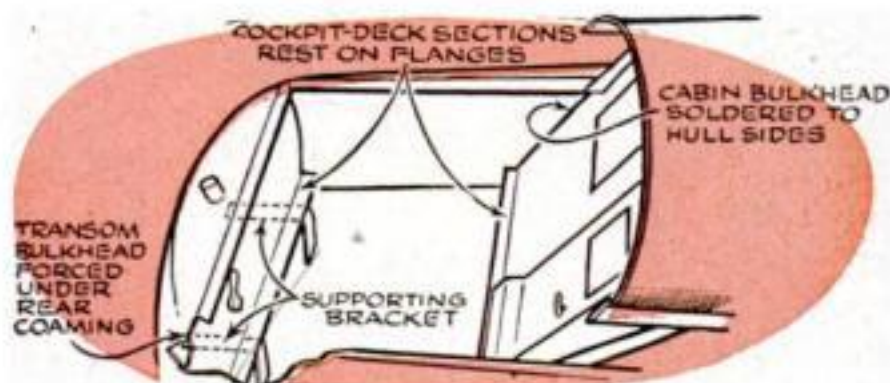
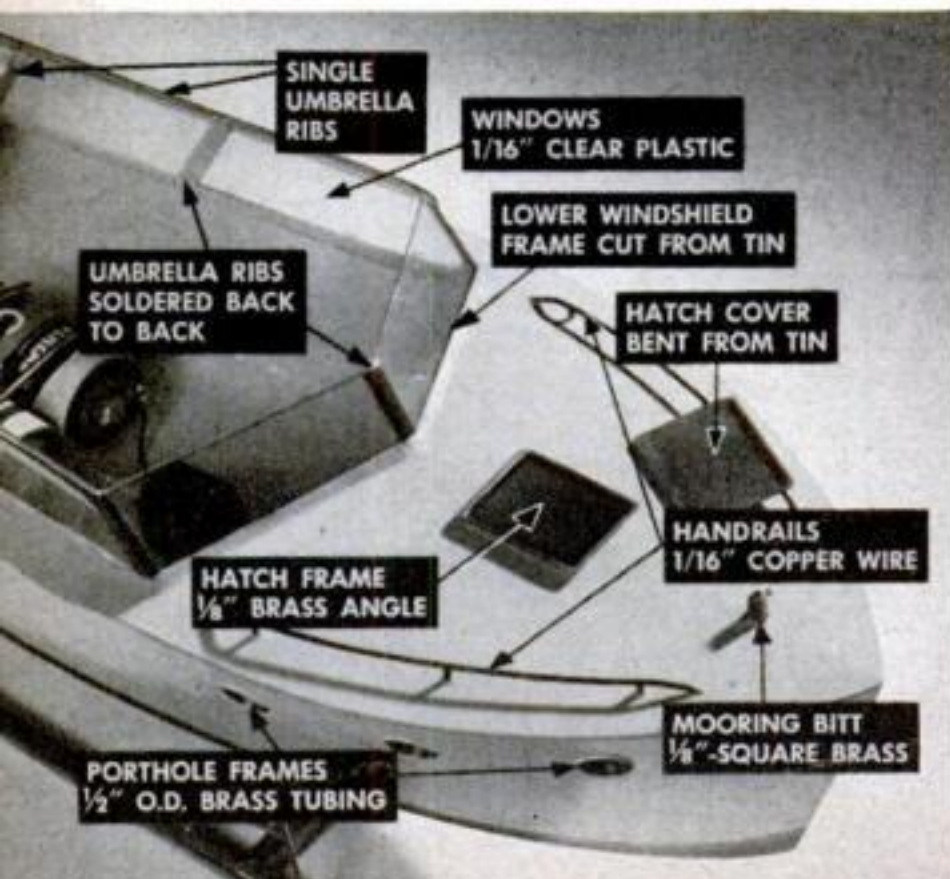


Solder copper wire along the after edge of the cabin top for edge molding.

Bend the running-light reflectors from sheet brass, solder them to the cabin top and cement the colored plastic lenses in place. Cement two surgical bulbs or modeler's pea lamps into the plastic.



Cabin bulkhead and cockpit. The cabin bulkhead is best fitted after the cabin top is formed. It's easier to trim the bulkhead top to fit the curve of the roof than to attempt to bend the roof to fit the bulk-



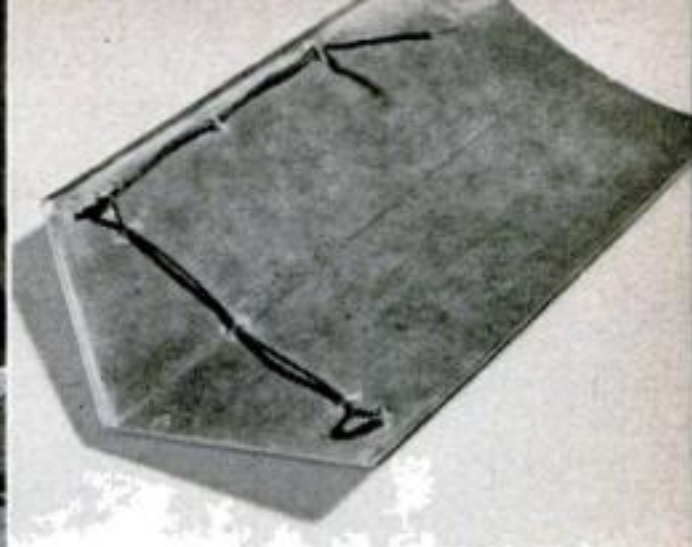
head. Umbrella ribs hold the plastic panes in the bulkhead window and door. Two pins on the door pivot in two little brackets, permitting the door to be opened. The cockpit deck rests on the flange bent along the



SIDE DECKS and transom are next in order of assembly. Note how transom forces sides into graceful curve at stern. This is a good time to lay a bead of solder along all hull seams, making hull watertight and rigid.



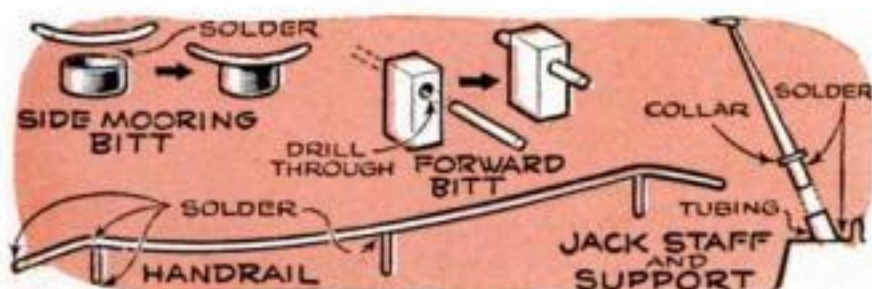
CABIN is built up of short lengths of umbrella ribs flattened slightly to receive the 1/16" clear-plastic windows. Acid-core solder is a must here as steel umbrella ribs are seldom tinned. Windows are installed after painting.



CABIN TOP is creased lightly along half its length; crease then blends into a curve at rear to fit over cabin bulkhead. Running lights are surgical bulbs set in colored plastic. Pen-light cells clipped under roof feed lights.

bottom of the bulkhead, and on two brackets soldered to the transom. The small stern bulkhead, in which the motor switch is mounted, snaps in place behind the cockpit deck. Its upper edge is forced into the folded-over rear coaming.

Fittings and details. Small details on the model are few but effectively placed. Fabricate the two side mooring bits from a short length of brass tubing partially flattened, and a bit of copper wire. Drill through a piece of 1/8" square brass and force a bit of wire through the hole to make the forward bitt. Assemble and solder the hand-rail on the forward deck, using 1/16" wire. Chuck a length of brass rod in your electric drill and file a taper on it to form the jack



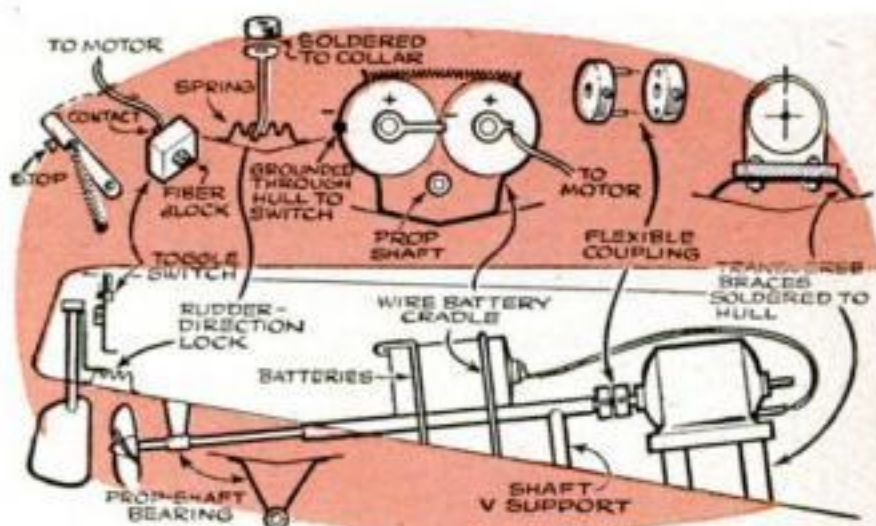
staff. Solder a bit of copper wire to the top of the staff and file it to a streamlined, air-foil shape.

Power plant. Lay the 1 1/2 - to six-volt miniature plastic motor, along with two flashlight cells, in the completed hull. Put the cabin top on and set the boat in water. Shift the motor and batteries forward and aft until the boat sits trim on the water.

Drive a large nail through the hull bottom at a point determined by the motor-shaft location, and bend it forward to provide a formed opening for the propeller-shaft housing. Insert the shaft (brass tubing) and solder well all around it.

Mount a toggle switch on the inside of

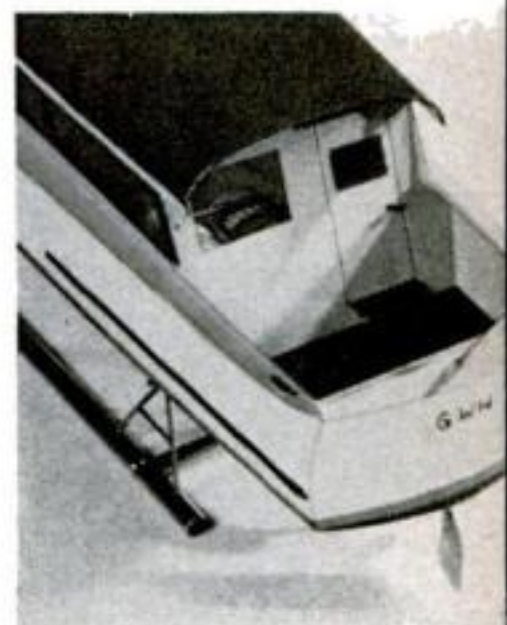
the transom bulkhead. Run one wire from the two series-connected D cells direct to



the motor. The other side of the cells and one leg of the switch are grounded, so that the circuit is completed through the hull and a single wire running from the switch to the motor.

Painting. Use care and plenty of masking tape wherever you want clean separation as at the waterline. I painted the hull bottom dark green, topping it off with a red stripe at the waterline. The hull sides I painted white, and the deck buff. The cabin top and details were finished brown. **END**

DETAILS AFT include umbrella-rib fender molding on hull sides (open ends are filled with solder) and mooring bitts built up from 1/16" wire. Cabin door pivots on hinge pins at top and bottom.



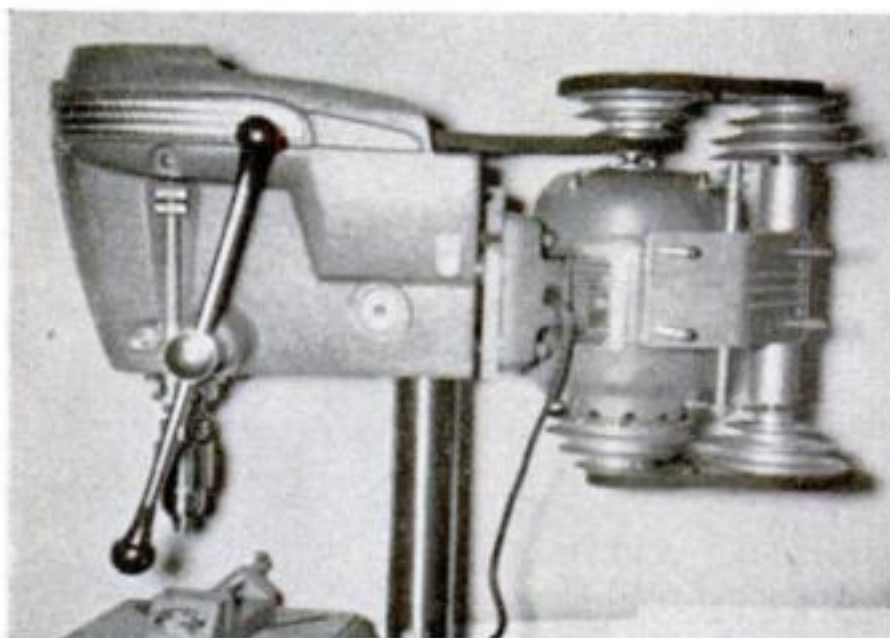
New Tools



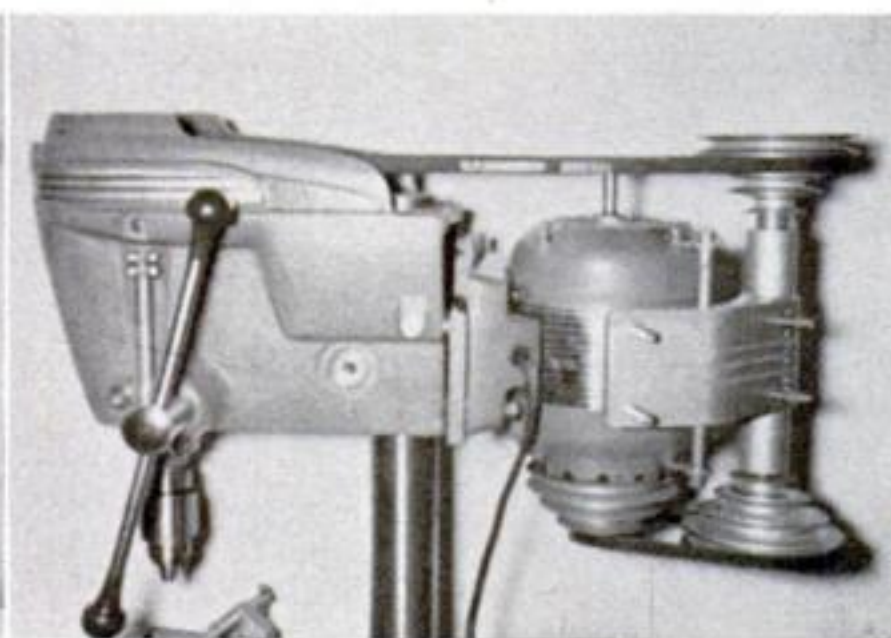
1 Electric Hacksaw. Wood, metal, nails and hard-board can be cut with this portable electric hacksaw. Not a drill attachment, the saw is a self-contained 6 $\frac{1}{4}$ -lb. unit driven by a 115-volt universal motor. It is 14 $\frac{1}{2}$ " long, has a $\frac{3}{4}$ " stroke and operates at 2,250 strokes per minute. No starting hole is needed since it cuts its own. Blades are available for different types and thicknesses of materials.



3 Pump Has Sealed-In Switch. This submersible-type sump pump for draining basements or ponds has a completely enclosed on-off switch inside the stainless-steel case. There are no floats or liquid levels outside the case. The $\frac{1}{2}$ -hp. motor operates the pump under as much as 15' of water, pumping 3,800 gallons per hour against a 5' head and 600 gallons per hour against a 22' head.



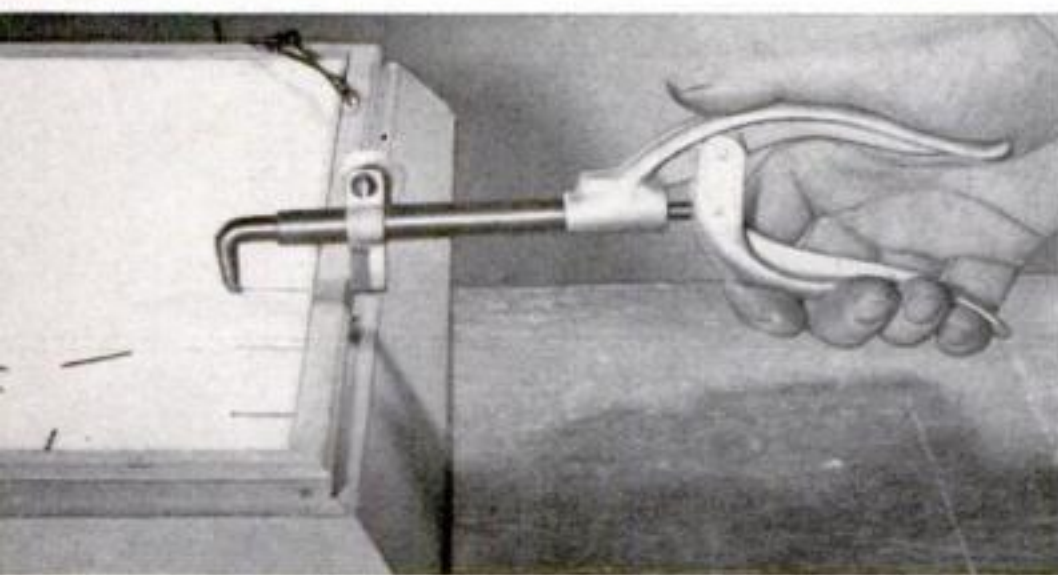
2 Speed Changer. Sixty-eight speeds from 96 to 26,000 r.p.m. are possible with the speed changer at left above. The pulley on the upper motor shaft floats freely. With the setup at right above, 52 speeds from 275 to 10,935 r.p.m. are possible. The speed changer can be used on all shop machines. After a pair of mounting clips has been in-



stalled on each motor, the speed changer can be moved from motor to motor. No tools are needed since the adjustment set-screws, which tighten the belts, are turned only finger tight. On a 12" bandsaw, the changer will give a range of 214 feet per minute for metal cutting to 2,200 feet per minute for sawing wood.



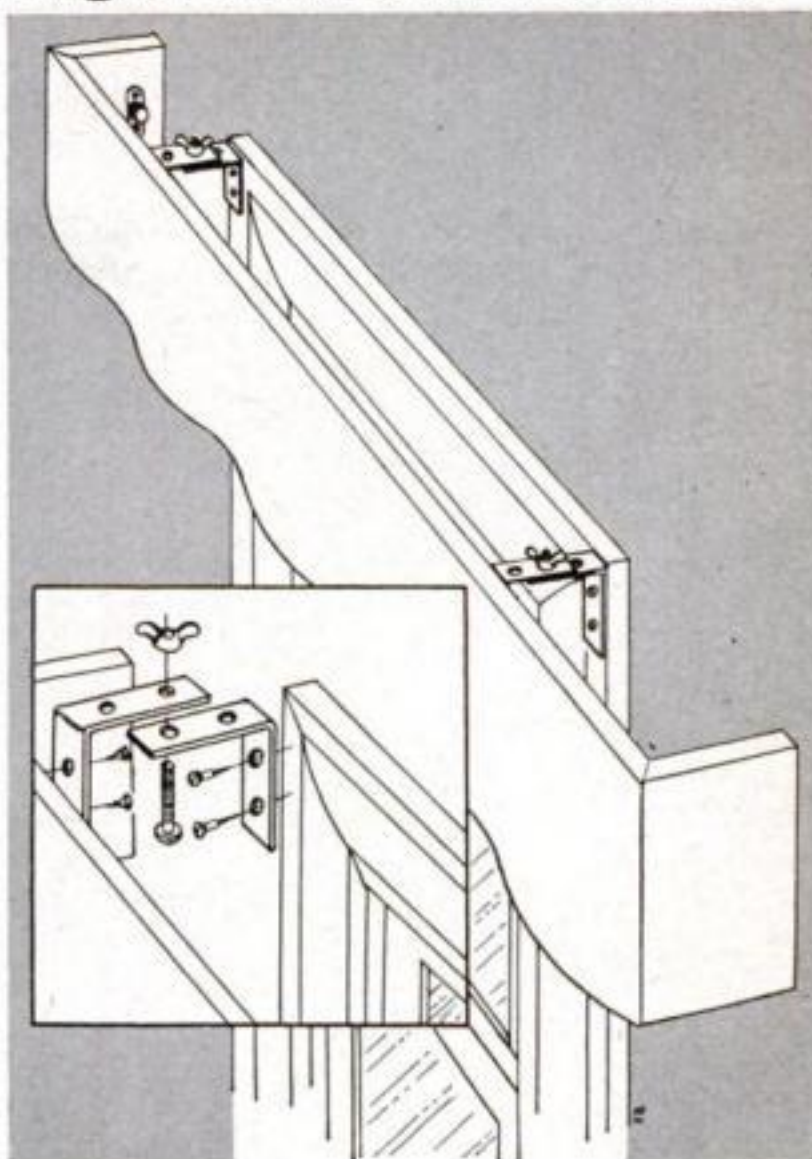
4 Guide for Electric Drill. Exact perpendicular or angular holes can be bored with this guide for a portable electric drill. The circular bubble level shows the vertical position of the drill while the contact head is calibrated in 5° divisions to show the drill position in relation to the work. The guide slides back against a spring as the drill is pushed in.



5 Tool Sets Framing Brads. The squeezing action of this tool quickly presses brads into picture frames, eliminating the danger of splitting the wood or breaking the glass by hammering. It is adjustable for frame widths from $\frac{1}{2}$ " to 3". A steel hook sets the brads while a rubber-padded clamp prevents damage to the frame.

Further information on these products can be obtained from: 1. Milwaukee Electric Tool Corp., Milwaukee 8; 2. John G. Louensbery, 3420 Meadowbridge Rd., Richmond, Va.; 3. Jacuzzi Bros., Richmond, Calif.; 4. Roy Silver Corp., Devon, Conn.; 5. Jewett Products Co., Woodbridge, Conn.

Angle Brackets Hold Cornice



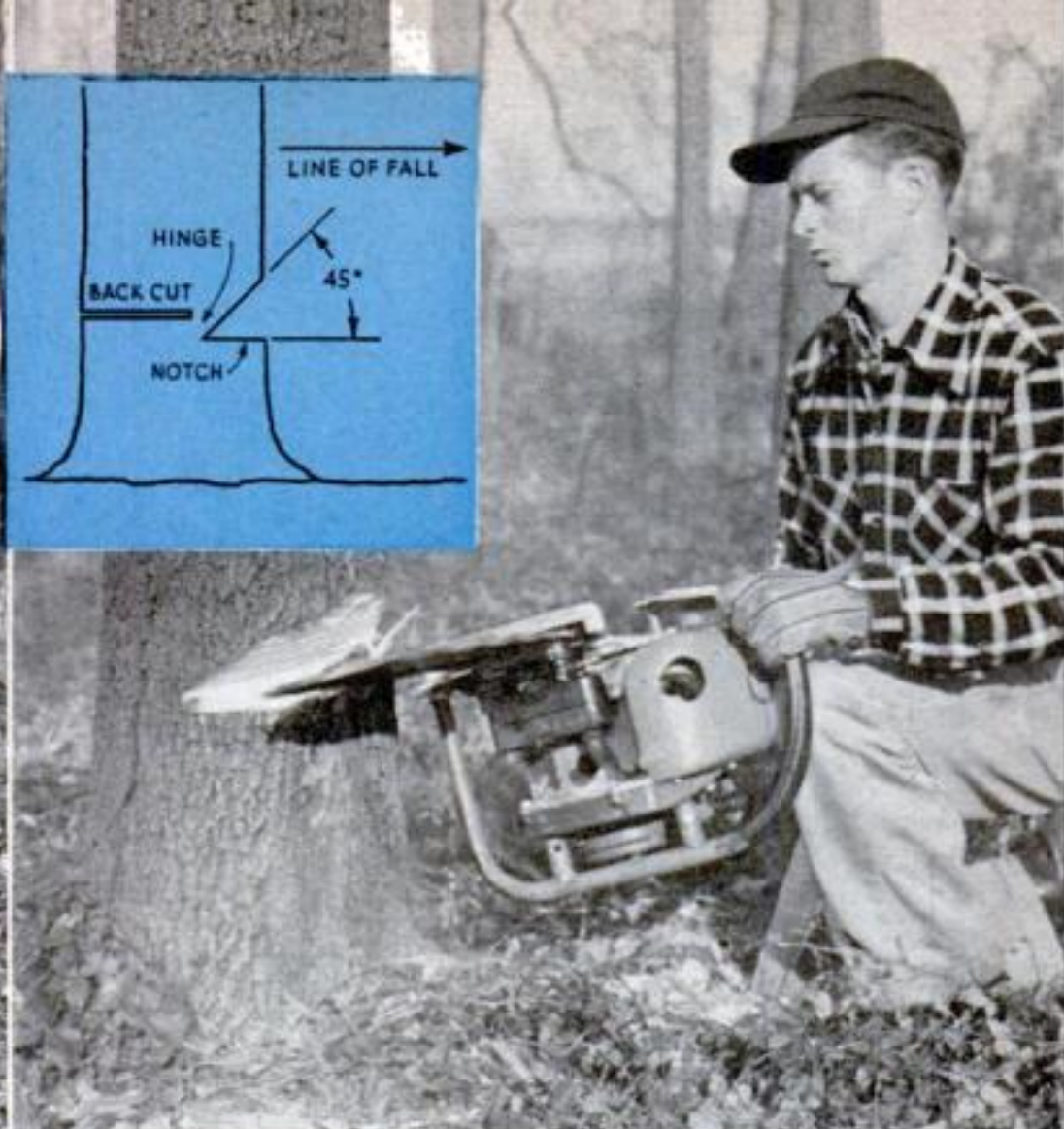
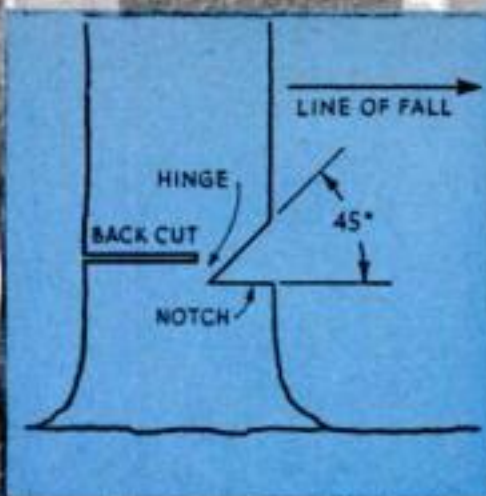
Four angle brackets and a couple of bolts and wing nuts simplify installation of a cornice. If the holes in the brackets do not put the cornice at the distance from the wall that you want it, you can drill new holes. Clamp each pair of brackets together and drill both at once. —Edward Bryan, Floral Park, N. Y.

Salvaging Trash Cans



You can replace the rusty bottom of an old rubbish can by cutting some scrap boards to the can's diameter and nailing them together with battens. Insert the new bottom in the can and nail it to the metal sides as shown in the photo. —Walter Haase, Hartford, Conn.

FELLING



1. PREPARATION. Clear away all undergrowth from around tree with an ax; don't use saw on small saplings because they may whip. Select a line on which you wish tree to fall, figuring on natural lean, wind and location of trees that might hang it up. Take a firm footing, position saw before starting chain.

2. NOTCHING. The undercut, or notch, controls direction of fall, which will be perpendicular to it. Notch should be a quarter to a third of tree diameter. Clean out all wood from it so tree will fall true. Brace body against motor frame so that if saw binds and kicks you will be shoved rather than struck.

How to Use a

Chain Saw

The staccato bark of this speedy little power tool can be heard around a growing number of farms and homes, too. Here are basic rules for using it safely and effectively.

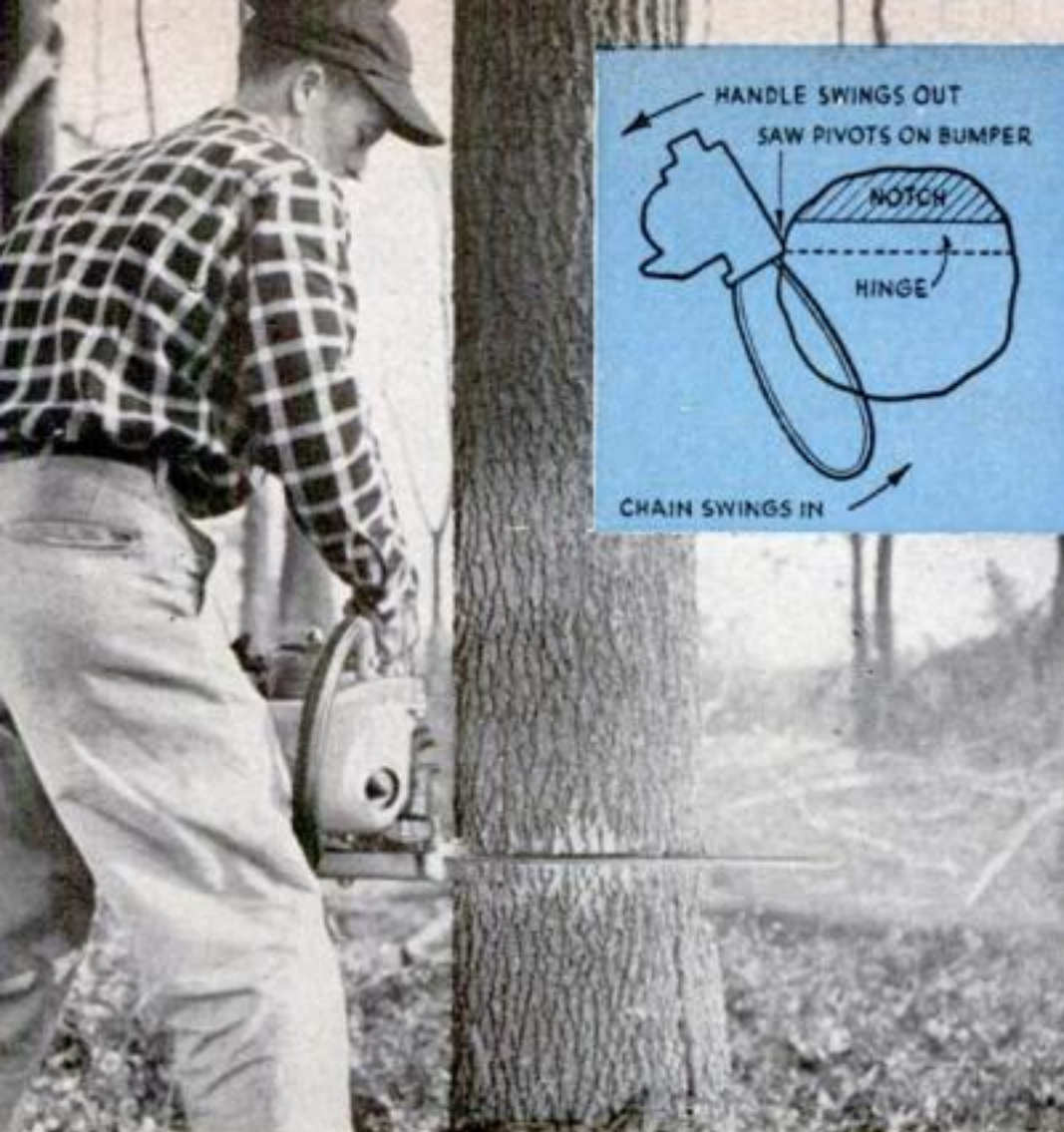
ANYONE who has served his time at the end of a two-man crosscut gets some surprises the first time he uses a chain saw. To begin with, it's light—three horsepower may heft at less than 30 pounds. It's noisy—after a couple of pulls on the starter handle it starts barking in an alarmingly business-like way. And it's fast—racing steel teeth bite into hardwood at a dizzy pace, and cuts that would take minutes by hand are done in as many seconds.

Often a whole job of felling, limbing and bucking into cordwood is finished before a man with ax and crosscut would be ready to cry "Tim-ber-r-r!" This speed can be a

hazard. Says a government handbook:

"Men unaccustomed to using a chain saw will be surprised again and again at how fast it cuts. Either in felling or bucking, the cut will often be finished before they expect it. It is important that provisions for the getaway . . . become almost automatic."

Now that these potent little power tools have spread from lumbering operations to thousands of farms, wood lots and homes, too, safety and efficiency in using them grows increasingly important. Like all tools, chain saws do best when their users know a few tricks. The photos and drawings show basic chain-saw techniques.

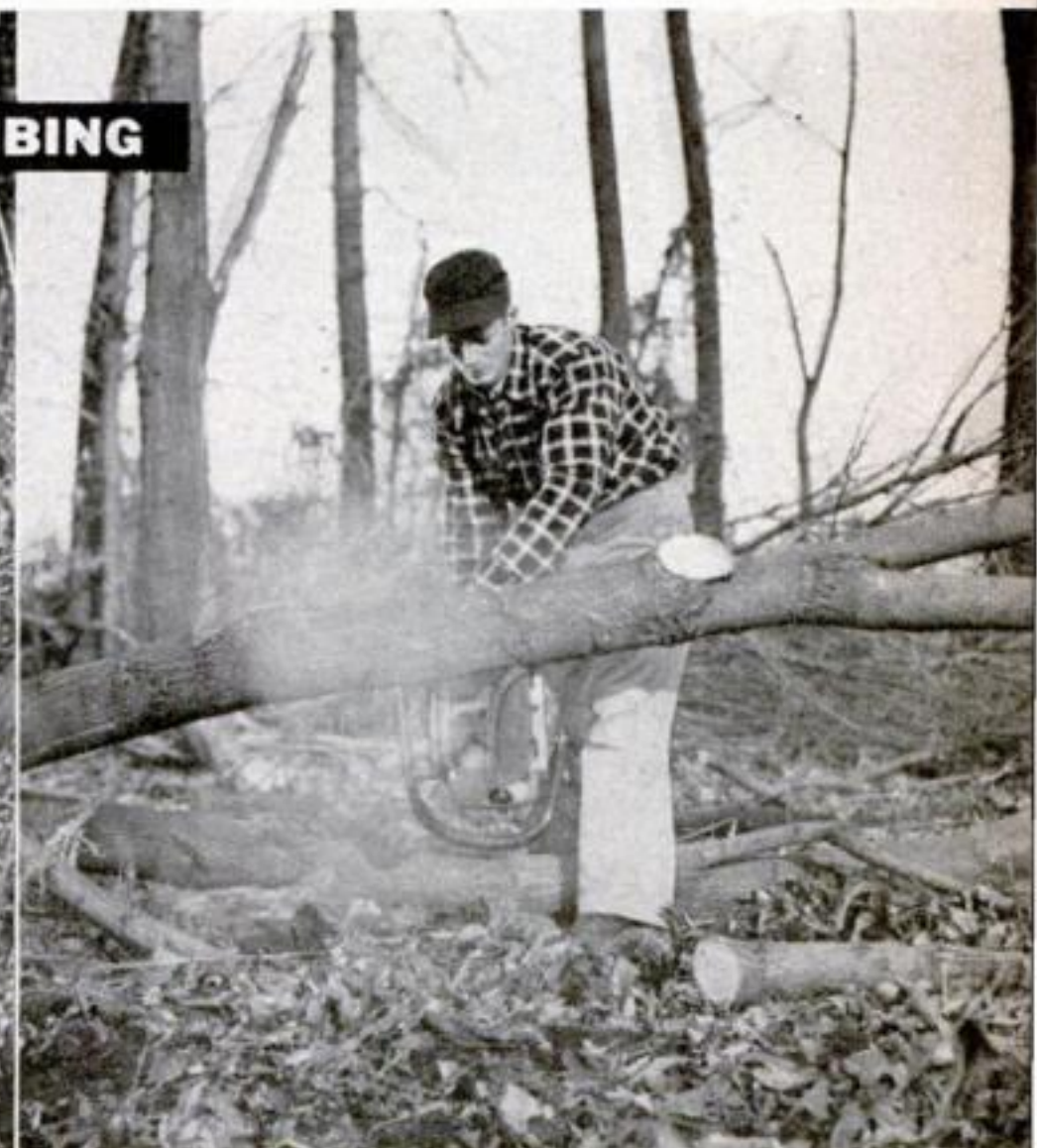


3. BACK CUT. This is made horizontally, about 2" higher than level part of notch. Do not cut through to notch; always leave a band of wood parallel to notch for a hinge. Because chain pulls motor bumper tight against tree, cut must be made in an arc, pivoting on plate. Keep both hands on handles while chain runs.

4. TIMBER! Path of retreat should be laid out before back cut is started. During the cut, keep alert and ready for a quick getaway. The moment tree starts to tip, shut off power, put saw on ground well back from stump and keep going another 25' or 30' before stopping to watch. This man is slow about it.



LIMBING



REMOVE branches and limbs before bucking. First use an ax to lop off brush and small limbs; then use saw on heavier limbs. Note how man has shoulder braced against limb and leg against tree trunk. Fallen timber can store pressures and tensions like a giant clock spring; study effect of a cut before making it.

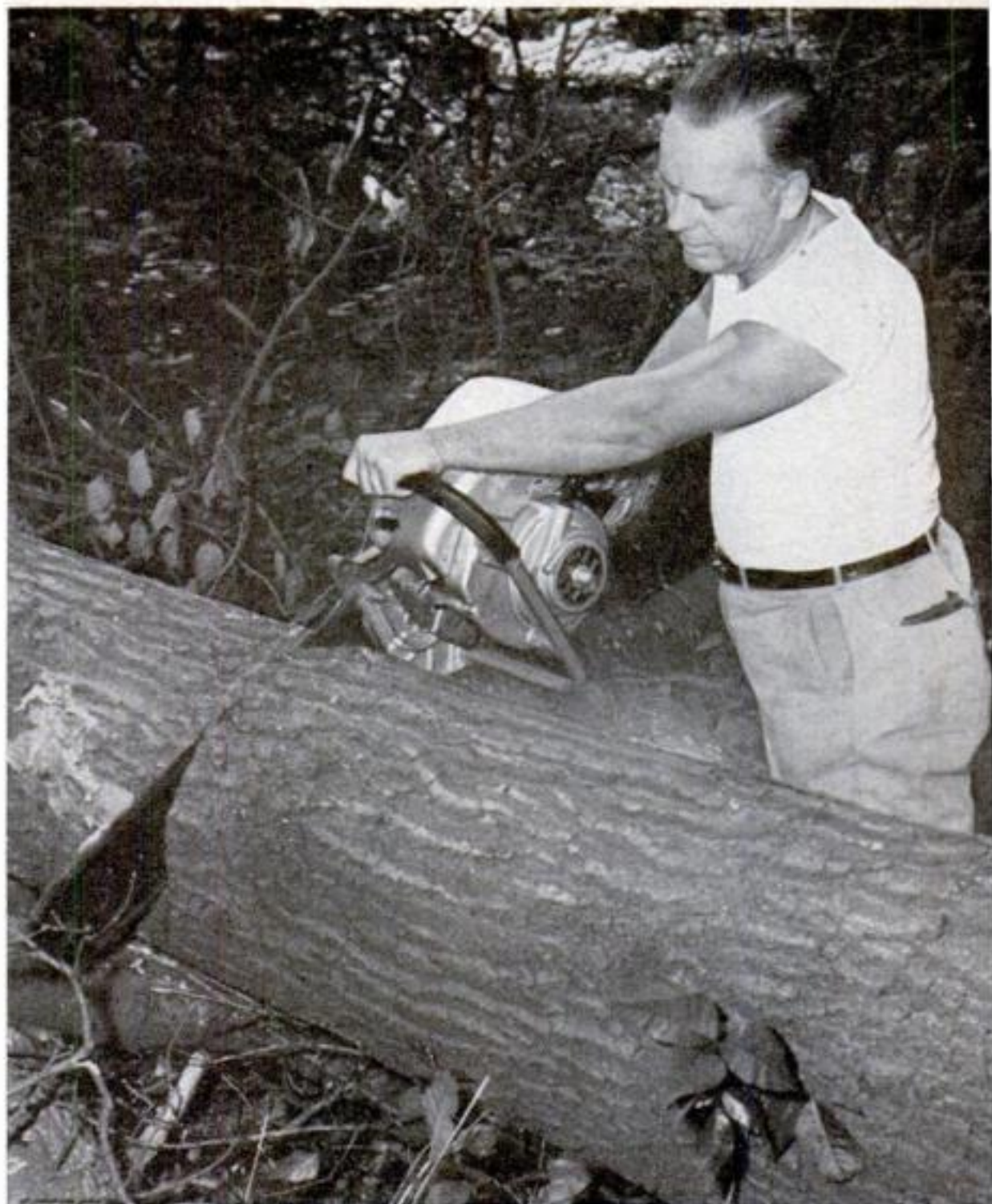
UNDERCUTS are handy on limbs supported at both ends. Be sure bumper is tight against tree before chain touches or the pull of the teeth will jerk the saw sharply. Be ready during cut to kill the power and pull out fast; never saw with the throttle locked open. *Please turn the page for more on chain saws.*



IT'S A BREEZE when the saw log hangs over this way—you lop off lengths like slicing a hot dog. Watch out for overconfidence, and for a shift of the trunk when the cut piece drops off. The saw shown is a Disston.



TAKE IT EASY when the log is flat on the dirt because stones can blunt a chain in an instant. Best bet is to quit an inch from ground, later roll the log and separate the pieces.



IT'S A BOTHER to cut a bridged log because the pieces being cut pinch the chain. First make cuts elsewhere that may destroy bridging, roll or pry up log, or make an undercut. On a cut like this, stop chain if pinching develops, drive wooden (not iron) wedge into kerf.

CHAIN-SAW SAFETY RULES

1. Always stop engine before making any adjustment to it or to the chain.
2. Always keep one hand on the handle bar and the other on the control grip when cutting. Never lock the throttle open—use the throttle lock only for starting.
3. Never allow the end or top of the chain to touch any branch or obstruction—the saw will kick up or back if it does.
4. The tension of the chain should be checked frequently and tightened if necessary.
5. Never wear loose-fitting gloves, ties, shop coats or other loose clothing.
6. Never carry a running saw—play safe and stop the engine.

Source: Homelite Corp.

FOR YOUR POPULAR SCIENCE MONTHLY INFORMATION FILE

"Sorry, Joe. I don't lend
my tools to anybody."



"Nothing personal, understand. But you should have learned long ago to build your kit around good tools.

Look at those Bonney tools of mine. Cost less than you think, and for my dough the best any mechanic can buy.

If you're short of cash right now, get yourself some BON-E-CON* wrenches. They're real mechanics' tools with the regular Bonney guarantee, and priced so that an apprentice can afford them.

With those as a starter, before you know it you'll build up to a kit like mine."



* The new Bonney
economy-priced line

Remember. Your local Bonney Jobber, as well as Bonney, stands behind the tools you buy. He has Bonney tools priced to fit your needs as well as your pocketbook.

BONNEY FORGE & TOOL WORKS . . . ALLENTOWN . . . PENNSYLVANIA

Copyrighted material

For a Real Shine...

Buff It!



Before. Dull, drab and tarnished, these ornaments resemble museum pieces. Some people prefer them that way, but . . .

After. The rich glow of polished copper, and the highlights of the gleaming silver can now be appreciated. Buffing did it.



**The magic cotton wheel really shines when it comes
to removing tarnish, pits and scratches from your
metalware. It gives a factory finish at home.**

By William P. Vogel

FEW workshop operations are as satisfying as buffing. With little effort, dramatic changes take place right before your eyes. Those winter-weary brass andirons with the baked-on coating of soot will regain their gleaming-new finish almost the instant they touch the buffing wheel.

Almost any metal object that was shiny once will respond to buffing: wall-switch plates, decorative copper pots, silverware, door knobs and knockers—a highly polished door knocker on a freshly painted front door adds the same touch that a monogram gives to jewelry. Your divot-happy golf clubs, buffed bright for the first game of the season, may not help your score but will reflect more sun into your opponent's eyes.

Three steps in buffing. The process of restoring a gleaming finish to a pitted or badly tarnished metal surface involves three operations. The first is *polishing*, which, surprisingly, is the term for a coarse preliminary operation done with a specially prepared *polishing wheel*. This removes the pits and scratches, and prepares the surface for the next operation, *cutting down*. This is actually buffing with sharp buffing compounds that remove the smaller surface imperfections and leave the metal bright. *Coloring* is the final buffing, done with soft compounds, to bring out the natural luster and color of the metal.

Selecting wheels. Before you rush out to buy an assortment of buffing wheels, consult the data card following this story for the wheel diameter and thickness best suited to the horsepower and speed of your motor. Buffing wheels are made in various types for different operations. *Spiral-sewed wheels* are stitched in a continuous circle from center to face, making them hard and well suited to cutting down. *Cushion-sewed wheels* have only two or three rings of stitching to provide a resilient, cushioning effect. Softest are the *loose wheels*, which are joined by a single circle of stitching around the arbor hole. Loose wheels are also made in flannel.

Buffing techniques. Knowing what wheel to use with what compound on what



**PREPARING AND USING
A POLISHING WHEEL**

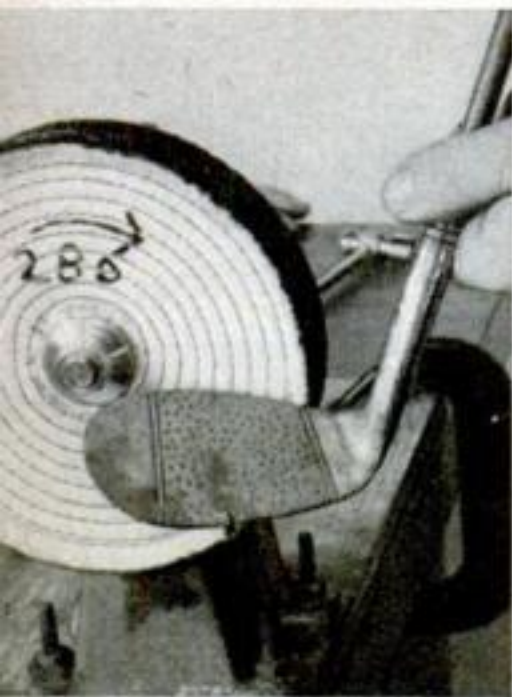
Size with glue. Mount several spiral-sewed wheels on a dowel and roll them in liquid glue poured on waxed paper. Smooth out blobs of glue with fingers and hang wheel to dry for about 24 hours. When dry, sand smooth to remove loose or projecting threads.



Apply powdered grit. Roll wheel again through glue and then through abrasive, such as No. 280-grit silicon carbide. Roll wheel back and forth without pressing until entire surface is coated. For fast work, make a second wheel using a coarser grit, such as No. 120.



Break up surface. When glue dries, scrape off loose abrasive and tap face of wheel with ball-peen hammer to produce hundreds of tiny cracks, making the wheel flexible enough to follow contours. Break in wheel on a piece of scrap before putting it in service.



Rusted golf club is good subject for abrasive-coated wheel. Ink an arrow on wheel so you can always mount it to turn in same direction. No. 280 marked with India ink on wheel indicates grit size. Properly made, abrasive wheel will give long service.



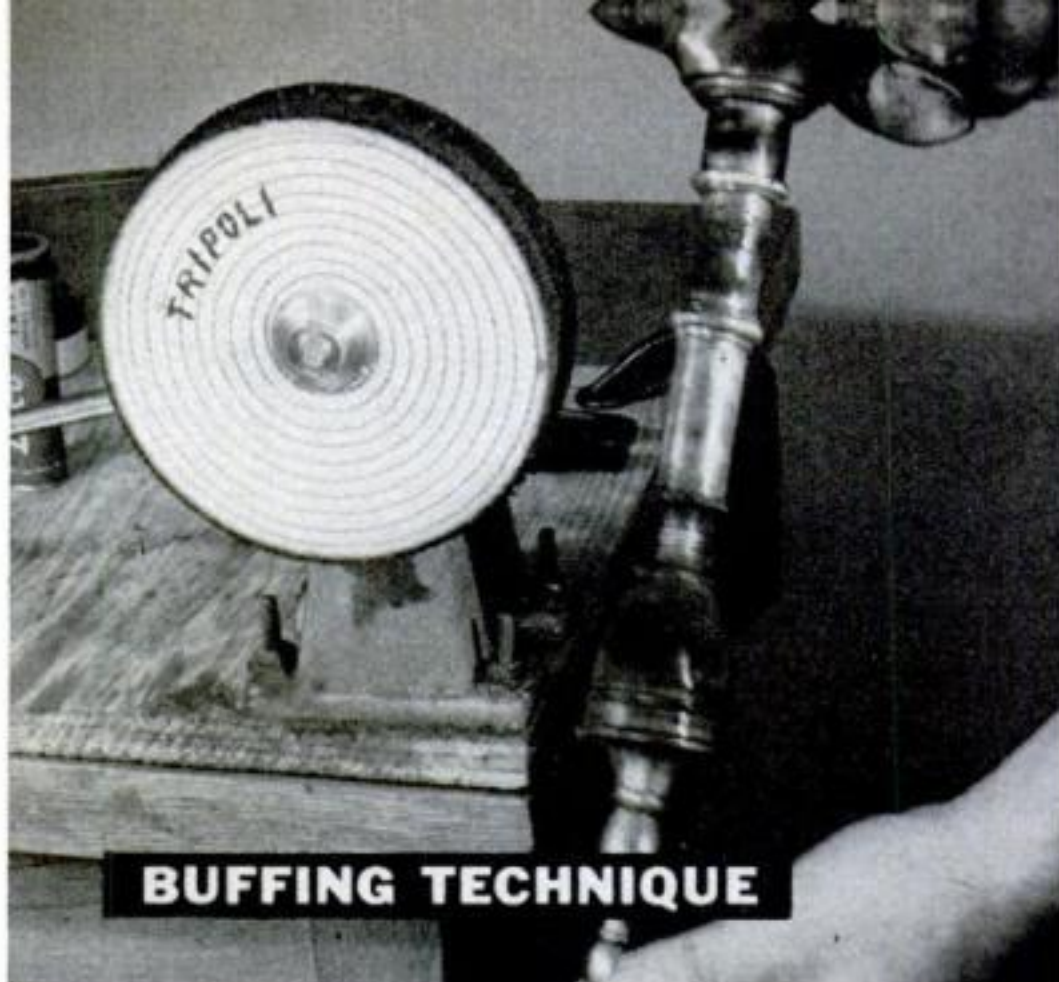
It cuts fast. Rust disappears almost immediately—pits and scratches take a little longer. After good working over with abrasive-coated wheel, club is bright, smooth and ready for cutting-down and coloring operations with stick compounds applied to uncoated wheels.



New buffing wheel, charged with emery buffing composition, is used to remove fine scratches left by abrasive wheel. Mark wheels according to compound used on them and use them only with that compound. Use solid, spiral-sewed wheel for cutting with emery.



Coloring steel club. After cutting down the club head to smooth off the surface, use a soft, cushion-sewed wheel charged with stainless compound to bring out the final factory finish. Hold work firmly against the wheel, slightly below the center of the spindle.



BUFFING TECHNIQUE

Cutting down. If work is badly tarnished or coated with soot as is the brass andiron above, cut down to the metal with a spiral-sewed wheel charged with tripoli. If wheel loads up with dirt, clean it by holding an old file against it, and recharge it with compound.

material is only half of your buffing education. The other, equally important half is knowing how to use your equipment. Here are some tips:

- Leave your necktie in the closet. The



Preserve finish by coating with clear lacquer or plastic spray. Before coating work, clean off greasy residue left by buffing compounds with rag dipped in powdered whiting, which you can get at any drugstore. Follow with thorough washing with carbon tetrachloride in a well ventilated place—preferably out of doors. Silverware or other items that must be washed or subjected to heat cannot be lacquered.



Coloring. Soft metals—brass, copper, silver and gold—are colored with rouge applied to a soft cushion-sewed wheel. The coloring operation can be hastened by speeding up the wheel, but this is not essential. Use light up-and-down strokes, turning work steadily.



Copper pitcher, tarnished but not scratched, is cut down mildly and colored in a single operation, using tripoli on soft cushion-sewed buff instead of spiral-sewed wheel used on andiron. Extra-fine finish can be applied with rouge on very soft loose flannel wheel.

workshop is no place for a tie anyway, and the buffing wheel is the last place.

- Wear gloves unless the work is so small or delicate that gloves are impractical. Much heat is generated when buffing and the work often becomes uncomfortably hot.
- Wear a shop coat and hat to catch the layer of black or red dust that will settle on you.
- Hold the work firmly against the buffing wheel slightly below the spindle center and move it up and down—up to get the maxi-

mum cut, down to blend the cuts together.

- Never take your eyes off the work—not even for a moment. The fast-moving wheel can snatch the work away from you, especially when it strikes an edge.
- Stop and inspect the work frequently while cutting. When the many fine lines and scratches are blended out, you are ready for coloring.
- Respect the buffing wheel as you would a friend who is helpful but a bit short-tempered.

END

BUFFING

Buffing-Wheel Selection Chart for Various Motor Sizes
Motor Size Recommended Wheel Thickness

	4" dia.	6" dia.	8" dia.	10" dia.
1/6-1/8 hp.	1"	1 1/2"
1/4 hp.	1 1/2"	1"	1 1/2"
1/3 hp.	2 1/2"	2"	1 1/2"	1 1/2"
1/2 hp.	3"	2 1/2"	2"	2"

Formula for Calculating Surface Feet per Minute (s.f.p.m.) (Ideal Buffing Speed Is 5,000 s.f.p.m.)

$$\frac{\text{dia. of wheel}}{4} \times \text{r.p.m. of spindle speed} = \text{s.f.p.m.}$$

Example:

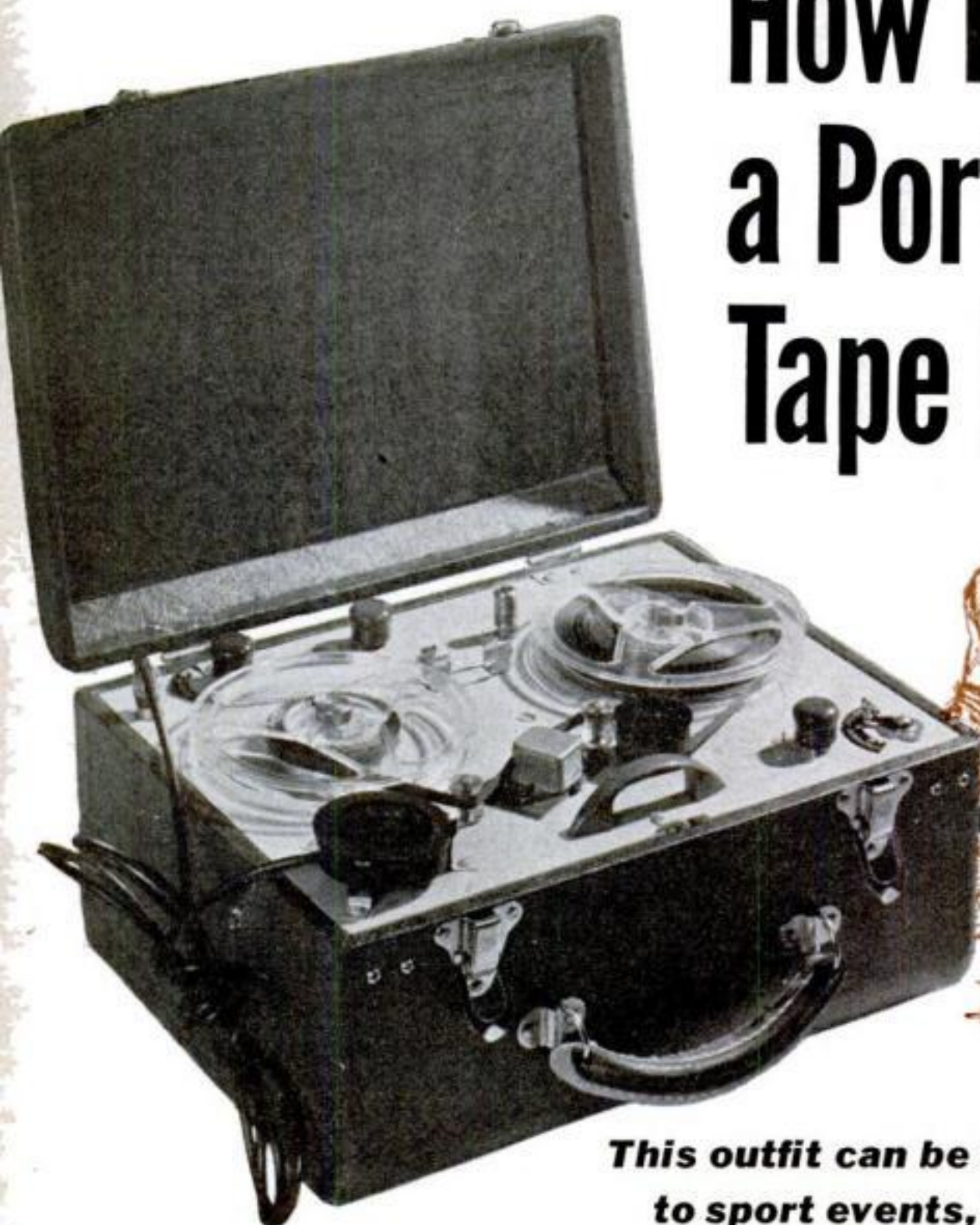
$$\frac{6''\text{-dia. wheel}}{4} \times 3,450 \text{ r.p.m.} = 5,175 \text{ s.f.p.m.}$$

Types of Buffs and Compounds for various Materials
Material For Cutting For Coloring

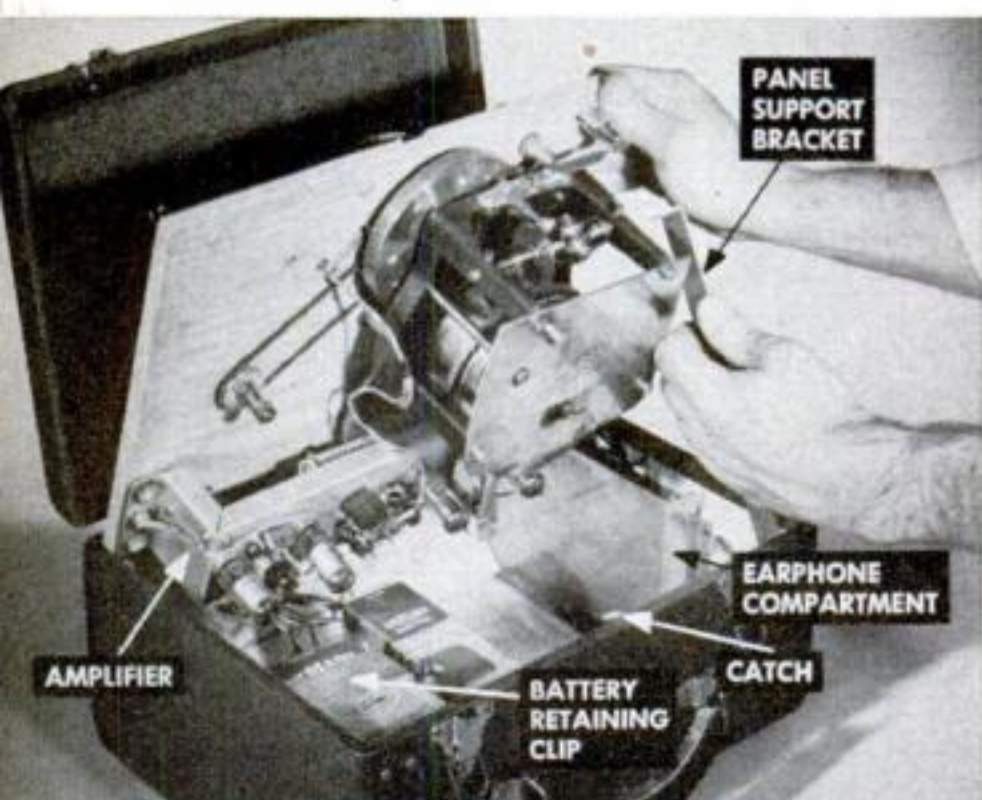
	Wheel	Compound	Wheel	Compound
Iron, Steel, Hard Metals	Spiral Sewed	Emery or Stainless	Cushion	Stainless
Brass, Copper, Aluminum, Soft Metals	Spiral Sewed	Tripoli	Cushion or Loose	Stainless or Rouge
Brass or Copper Plate	DO NOT CUT	DO NOT CUT	Loose, Cushion or Flannel	Tripoli or Rouge
Solid and Plated Gold or Silver	DO NOT CUT	DO NOT CUT	Flannel	Natural Rouge or Jeweler's Rouge
Nickel or Chrome Plate	Spiral Sewed	Stainless	Cushion or Loose	Stainless
Plastics	Cushion or Loose	Tripoli or Stainless	Loose	Stainless

FOR YOUR POPULAR SCIENCE MONTHLY INFORMATION FILE

How I Built a Portable Tape Recorder



This outfit can be taken on picnics, to sport events, in a boat or car. A spring motor and batteries make it independent of power lines.



By Howard G. McEntee

ONCE you get a yen for a tape recorder, you get it bad. Mine was complicated by wanting a wholly portable outfit. I was willing to pass up high fidelity provided I could take the rig any place—without a line cord mooring me to a 115-volt outlet.

You can buy such outfits, but they tap the budget for \$225 and up. The parts for a recorder that would suit me figured out to a fraction of that, so I tackled the job.

Even using what ready-made parts you can, this is no kitchen-table project. Certain parts must be machined on a lathe and drill press. Unless these parts run dead true, you'll never get the wows and quavers out of your sound. But it isn't hard to make them accurate with the right equipment.

The case. Something the luggage stores call a train case, measuring 7" by 10" by

PANEL IS HINGED at the back and rests on small angle brackets at the front. A catch secures it for carrying. The long bracket at the right holds up the panel for convenient access to the batteries, tubes and motor.

13" outside, holds the whole works of my recorder. The lower part, without the lid, should be at least 5½" deep.

The motor. Even a small battery motor would take a lot of expensive dry-cell juice and be hard to regulate. I used a husky two-spring phonograph motor. This runs off half a 5" reel of tape at a winding, giving seven to 15 minutes of operation, depending on tape speed. A lighter single-spring motor wouldn't do; my big one just gets by.

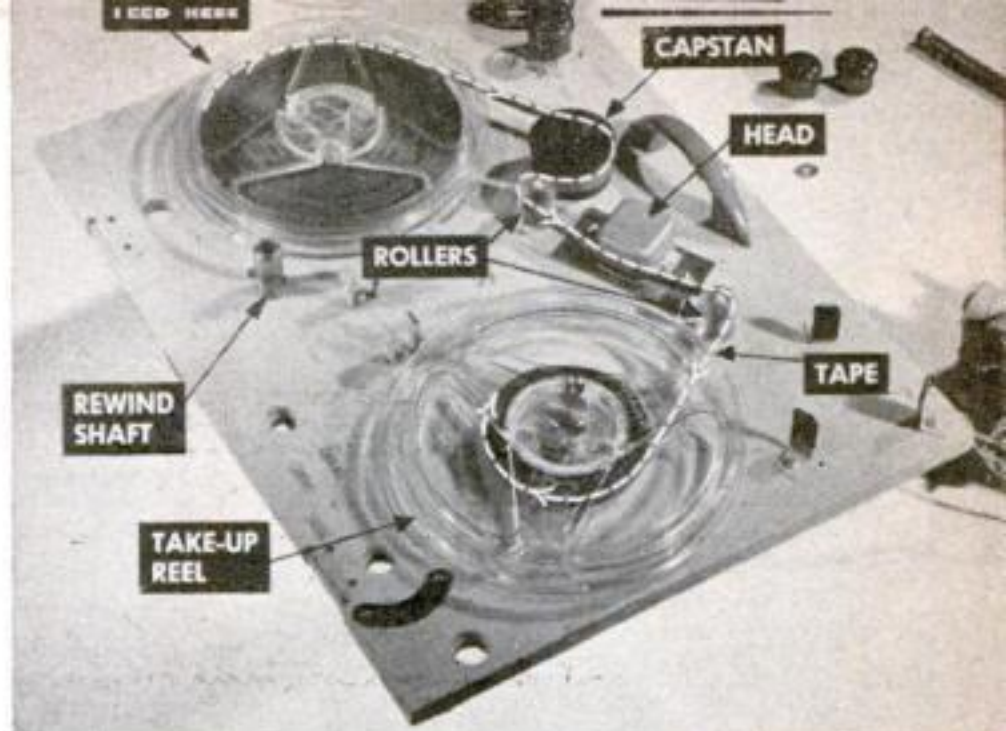
The first step was to dismantle the motor and remove the output shaft. On my motor it was only necessary to take off one end plate to slip out this shaft with its gear. Then I chucked it true and turned three steps on the upper end. A 5/16" diameter as near the bearing as possible takes the flywheel. A ¼" diameter receives the belt pulley, and the capstan end is 7/32".

A flywheel proved indispensable to keep the tape running at a constant speed. The original mounting holes in the motor frame did not leave room for one, so I drilled and tapped new holes, first checking to make sure they wouldn't interfere with something else. The flywheel was built up on a solid-brass gear by riveting on lead disks and then turning the assembly true. If space permits, make the flywheel at least 5" in diameter.

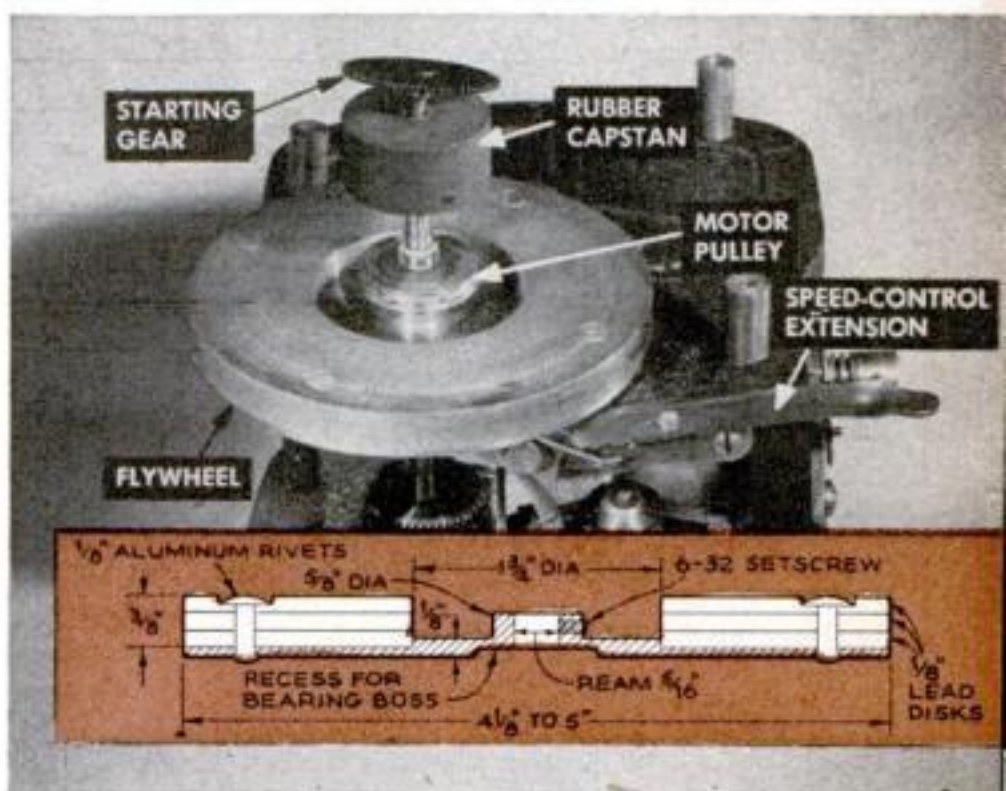
An extension arm was soldered to the governor control, and a speed regulator from an old phonograph was mounted on the panel to work the arm. A simple stop working on the flywheel was also fitted.

No crank came with my motor, so I made one up as shown in the drawings. The extra notch catches the pin in the rewind shaft, which must be turned counterclockwise.

The capstan. Capstan drive insures uniform tape speed whether the take-up

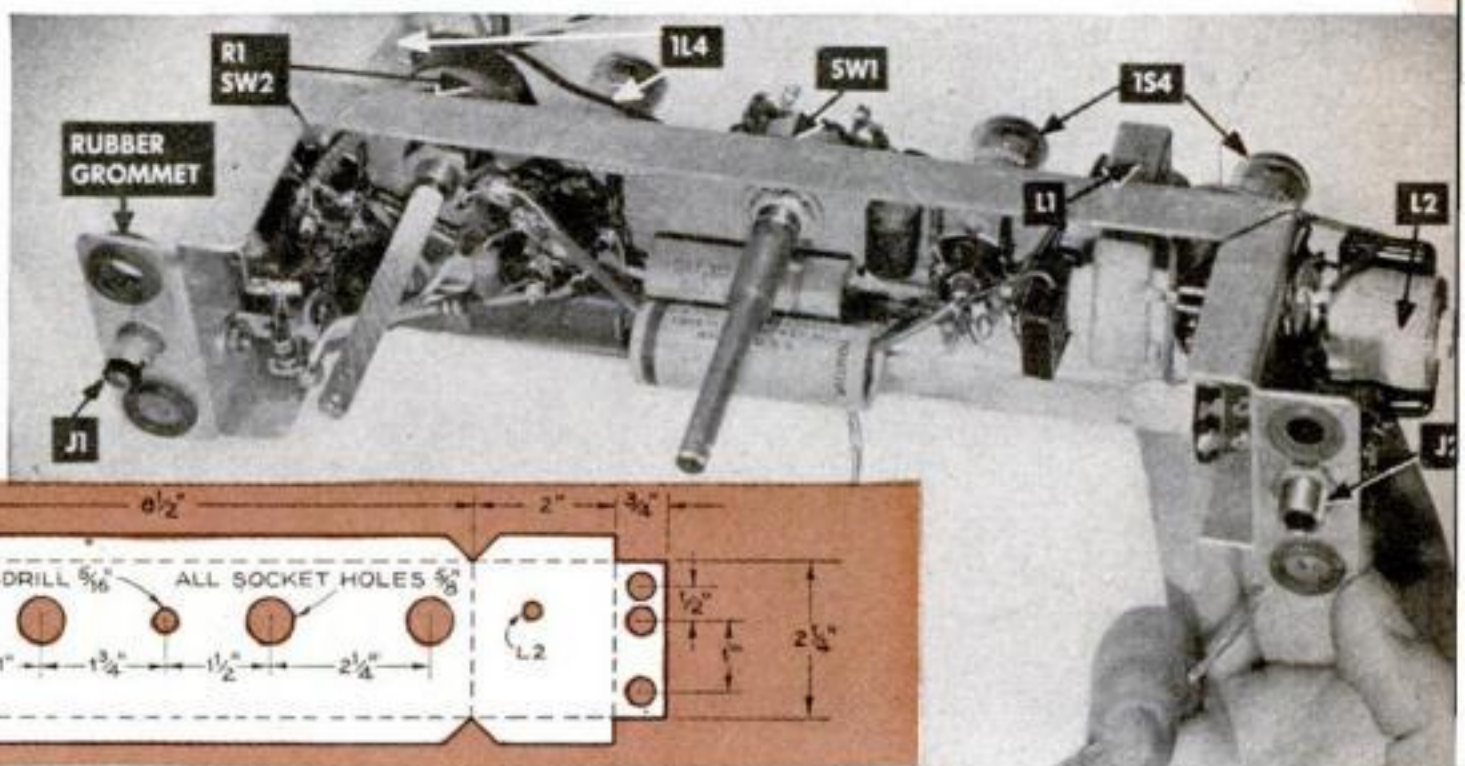


HOW TAPE IS THREADED. The oxide (dull) side must touch the recording head. Tape winds on the reels with this side out; if purchased with the shiny side out, simply rewind it. The clips at right-hand corner above hold the mike. Those between the reels are for the crank. Use light oil on reel and roller shafts.



HEAVY FLYWHEEL is a must for smooth tape travel. The one shown above is minimum in size and weight; use a bigger one if space permits. Gear on top of rubber capstan is twirled to give heavy flywheel a quick start.

STRIP CHASSIS is laid out on 1/16" aluminum, drilled, and bent up as shown. It is mounted upside down behind the motor. Wood screws with tiny washers on them run through the rubber grommets.



reel is full or nearly empty. The capstan is a friction wheel which moves the tape along by direct contact, pulling it off the free-turning feed reel. The take-up reel is belt-driven to pick up tape as fast as the capstan runs it through.

My capstan started out as a No. 8 one-hole rubber stopper bought at a drugstore. I first cut down the taper by holding it against a sanding drum. Then I forced it onto some $\frac{1}{4}$ " tubing, chucked this in an electric drill, and ran it against a fine high-speed grinding wheel, which quickly produced a straight, smooth surface.

Since the motor gets the flywheel rolling rather slowly, I soldered a thin gear to the capstan retaining screw. A twist of the fingers gets the tape moving immediately.

The rollers. I turned these from an old plastic screwdriver handle I happened to have, but, being molded, this wasn't as easy to turn as extruded Catalin or Bakelite would be. Each roller spins freely on a piece of small tubing.

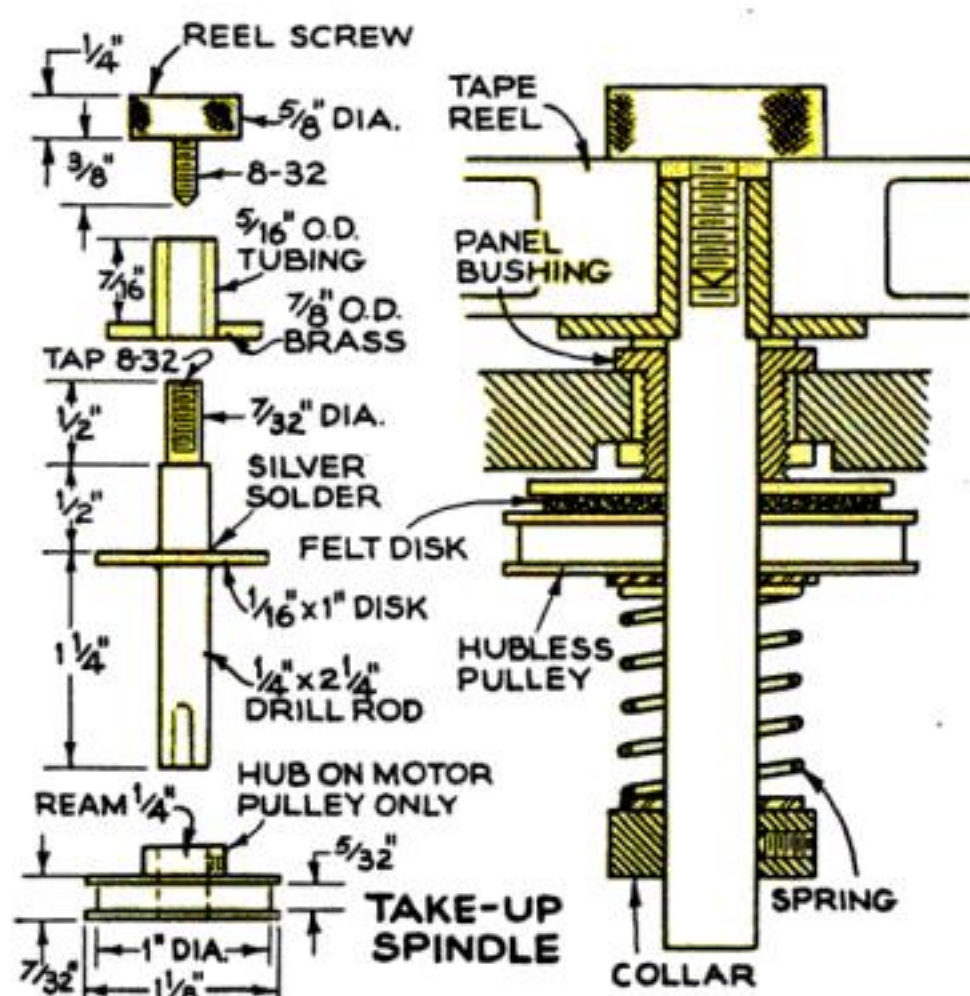
The head. This was purchased, and has one winding for recording and playback and a second winding for the erasing current. It was mounted with 2-56 screws on a small piece of Bakelite. This was fixed on the panel with wood screws in slots, which permit adjustment.

The reel spindles. Both reel spindles were made by soldering brass tubing into large brass washers. These were faced true in the lathe, and the spindles pressed onto the shafts. For bearings I used panel bushings to take $\frac{1}{4}$ " drill rod. My drill stock was slightly oversize so I had to ream out the bushings for a good fit.

The feed-reel shaft has a small spur gear on it, which an idler gear links to a large gear on the rewind shaft. The ratio should be at least 5 to 1. Use an idler of any convenient size; it does not affect the ratio.

To make the tape hug the capstan, the feed reel must drag a bit. This was achieved by cementing a felt disk underneath the reel seat and a leather disk to the panel below.

The take-up reel. Since the hub of the take-up reel is larger than the capstan, it keeps trying to wind in the tape faster than the capstan delivers it and there is never any slack. But to keep the reel from pulling the tape too fast, it must be driven by a clutch arrangement that permits it to slip. A pulley, belt-driven from the capstan shaft, turns freely on the take-up shaft but is pressed up against a second disk on the



shaft by a spring. This clutch disk was silver-soldered to the shaft and faced dead true. Between it and the pulley there is a felt disk into which powdered graphite was rubbed. Spring tension can be adjusted by moving the collar.

Adjustments. Motor and take-up shafts on my recorder are $5 \frac{9}{16}$ " apart. This proved just right for a standard dial belt,

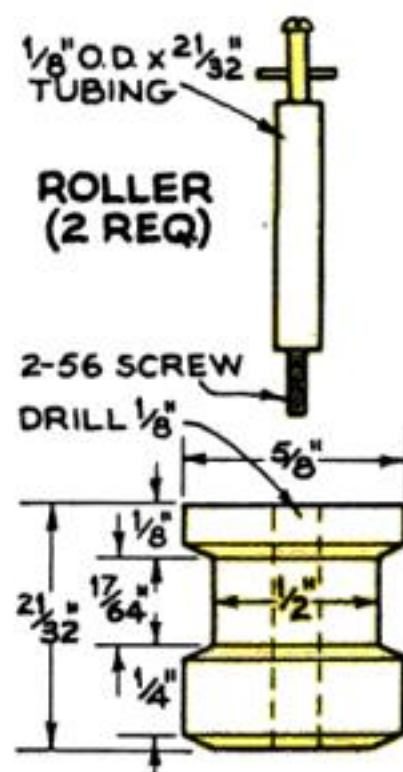
but it would be a good idea to mount one or the other in slots to permit adjustment.

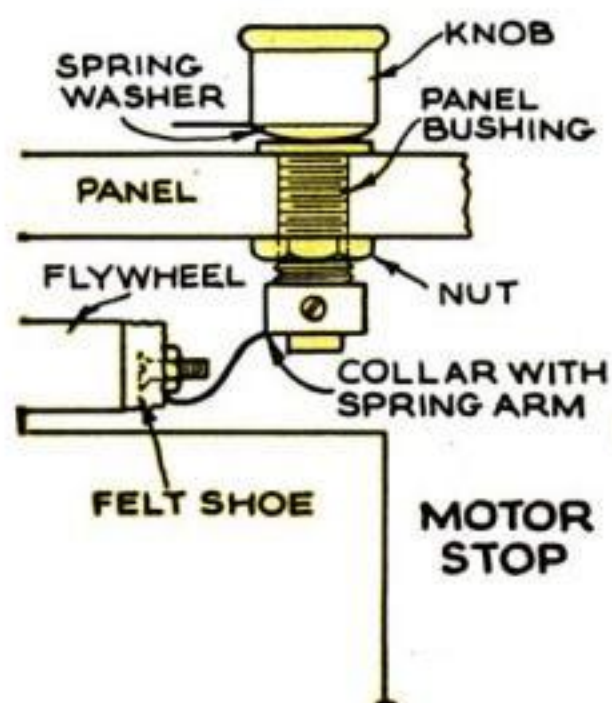
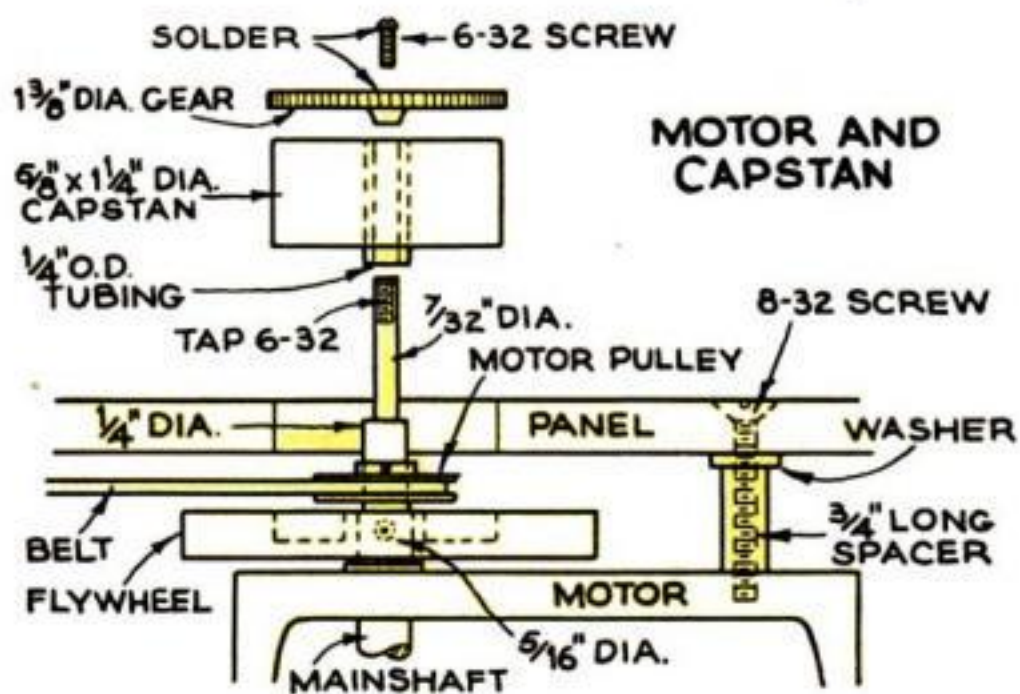
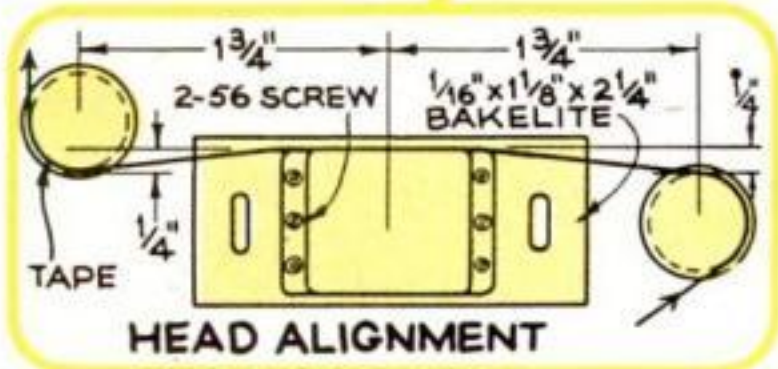
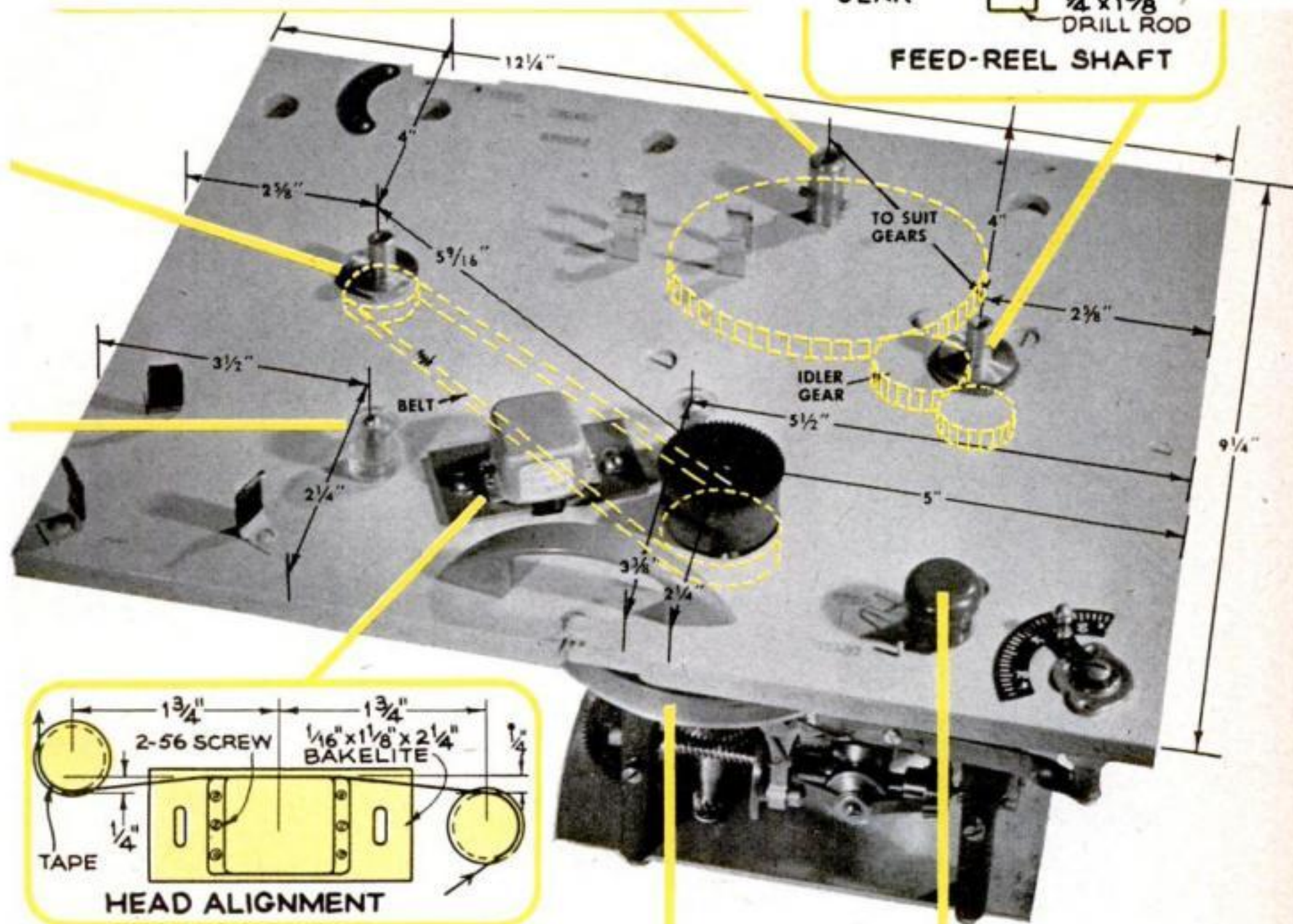
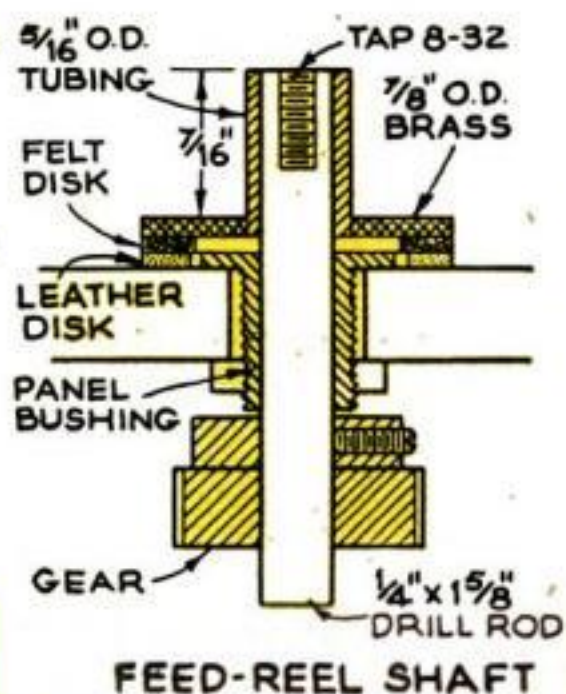
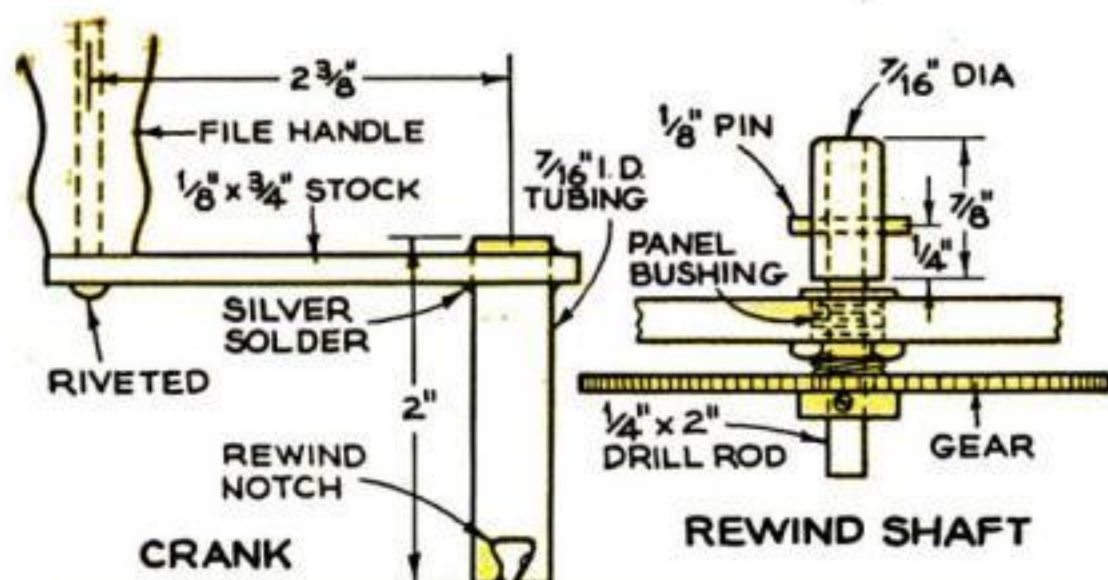
The head and rollers were set so that the tape cleared the upper edge of the head housing by $\frac{1}{64}$ " and wound up evenly in the reels. Tape must run across the head with the oxide (dull) side in, which means it must be wound on the reel oxide side out.

By flipping over and interchanging the two reels you record on the opposite edge.

The amplifier. To simplify the circuit and reduce battery drain, I omitted the equalizing networks embodied in commercial recorders to gain quality. As built, the amplifier is adequate for voice, but won't do anything for Beethoven's Fifth.

Only the main chassis holes are shown on the drawing. Extra ones are needed for







Radio Locator Finds Lost Model Planes

If a costly radio-controlled model runs away, this electronic bird dog may help track it down. It works by giving "fixes" on the lost plane's own radio.



WHEN you lose control of a radio-guided model plane, you frequently lose the plane. If the model's rudder-operating system fails and a strong gust of wind comes along, several hundred dollars' worth of plane is likely to take wing for parts unknown.

After losing several valuable models this way, a group of New Jersey fans got an idea: if the planes are flown by radio, why couldn't they be found the same way? When a runaway comes down, there's a good chance that its shock-mounted, sturdy receiver will continue to operate for an hour or more. Like most radios, the model's receiver sends out a signal that can be detected at several hundred feet.

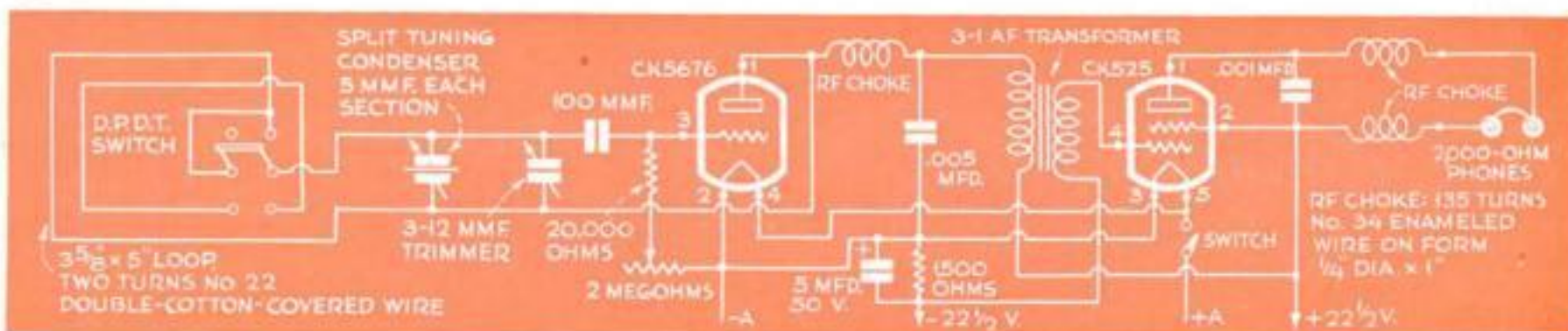
Radio spots signal. The Jerseyites came up with a simple two-tube receiver to pick up the lost plane's signal and a loop antenna to tell its direction. The circuit (below) will operate on either of two widely used control frequencies. The antenna loop is wound

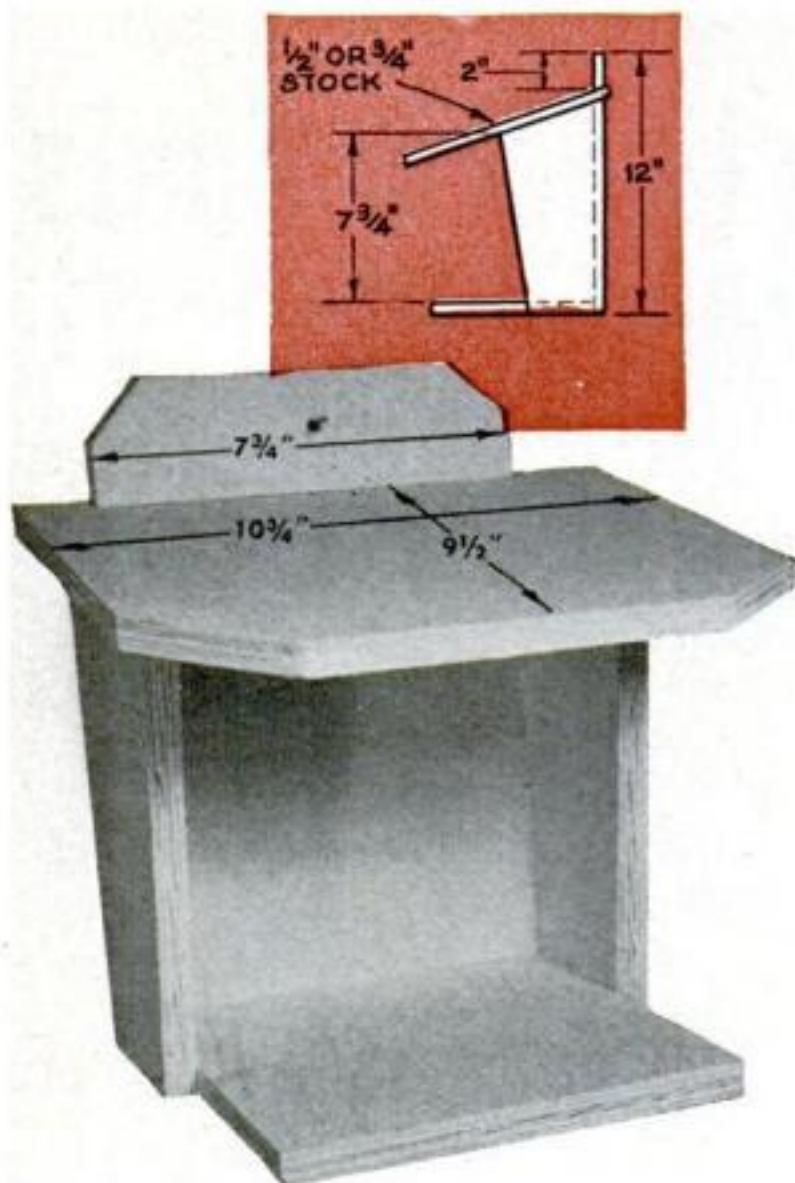
around the inside of the hinged cover (left above). Tubes, B battery and many other parts are identical to those in the model's own receiver.

How finder works. The locator is first taken to the approximate area of the plane's fall and tuned to the model's frequency. The loop is then rotated until the signal is weakest. This null point is a more accurate indication of direction than the point of strongest signal.



Taking a fix. The plane of the loop is now at right angles to the line along which the lost model lies, and the operator must walk up and down this line to tell which way to go. As he walks away from the plane, the signal gets weaker; toward the plane, it gets stronger. One fix may be enough, but will show only direction. To tell how far away the plane is, several fixes are often taken from different points (sketch). The point where all lines converge shows the exact position of the plane.—Howard G. McEntee.

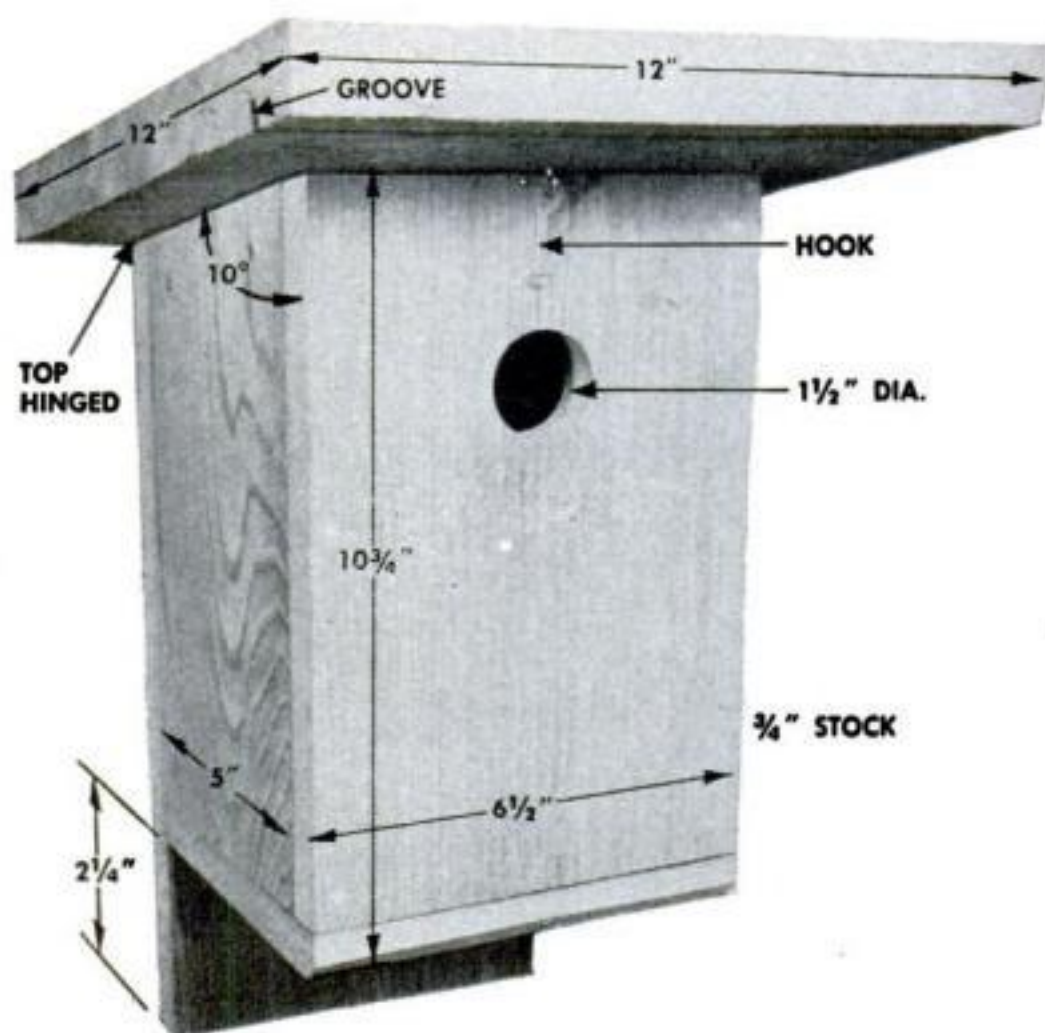




Robin. Open shelters like this will attract robins, phoebes, brown thrashers and catbirds. They won't go into houses.



Woodpecker. A large woodpecker, flicker, flycatcher or owl will use a house of this type. Slant top forward at 45°. Vary the depth of the box according to the type of bird you want to attract. This one was made of scraps of new plywood called embossed Rezon. It has crinkly surface resembling bark.



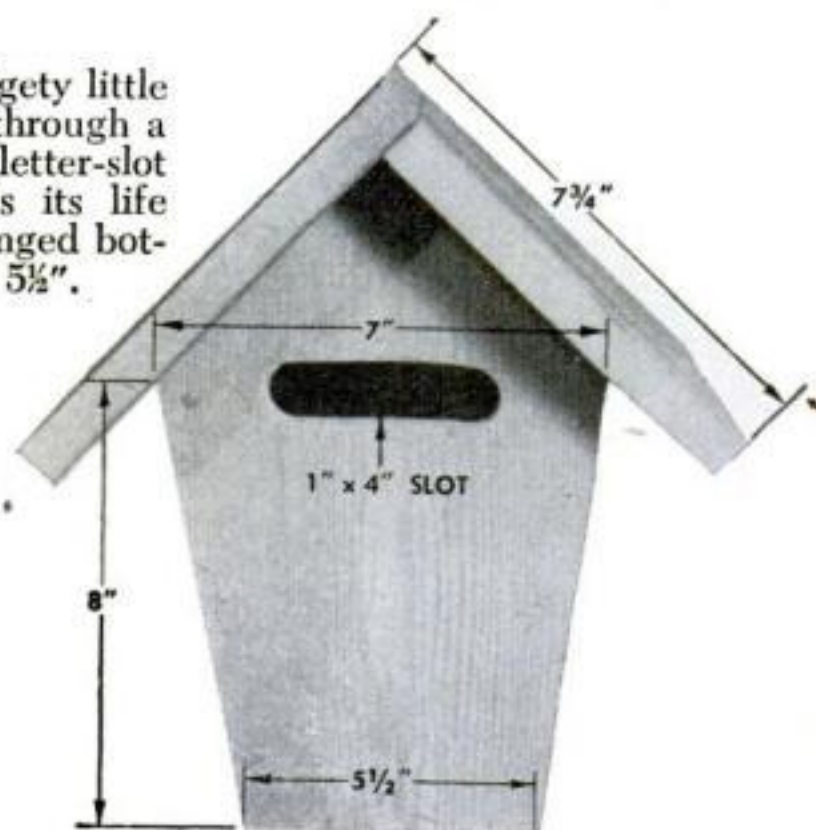
Bluebird. Depending on where you live, a bluebird or swallow may take to this house. The 2 1/4" tail below the house can be used for mounting it. Groove sawed under forward surface of the top keeps rain from seeping in.

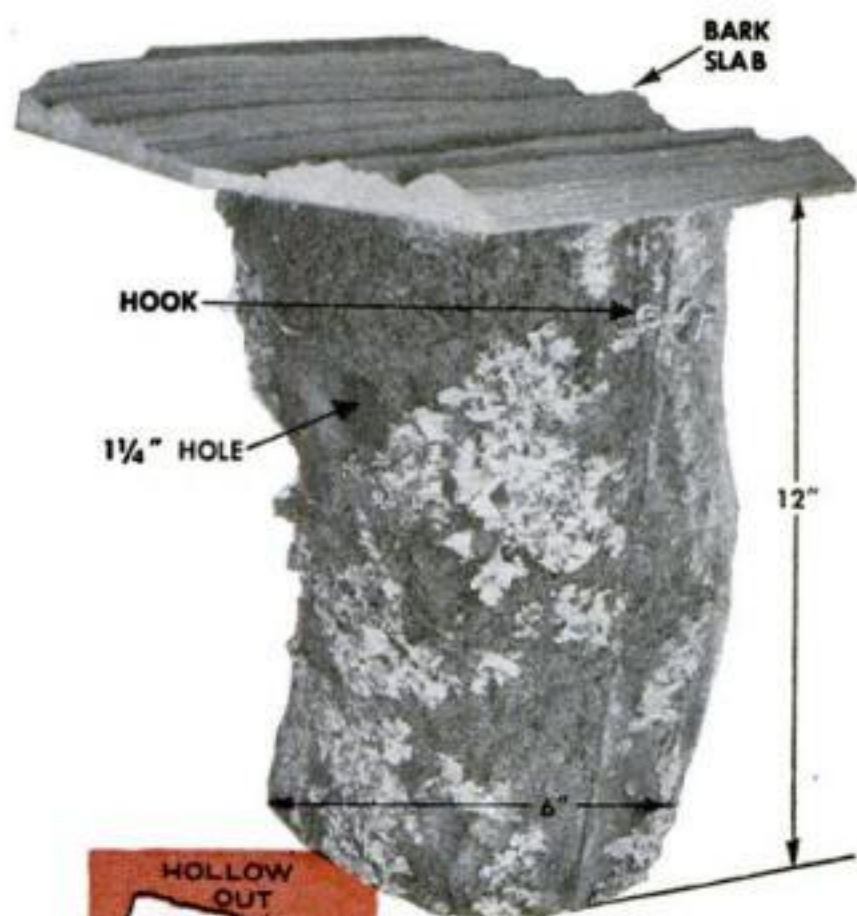
Time-Tested Examples of

5 Basic Birdhouses

By Jerry Parker

Wren. The fidgety little wren can get through a 1" hole, but a letter-slot opening makes its life easier. The hinged bottom is 5 1/2" by 5 1/2".





Chickadee. These birds like a log house best. The treelike exterior attracts them faster than a house built in the style of a human's because it is the sort of place that they would nest in naturally. Titmice, nuthatches and small woodpeckers also take to this type of house.

To build it, a log is halved with a rip-saw, then hollowed out, as shown in the photos on the next page. A bark-covered slab makes a perfect roof and helps make the entire house less conspicuous.



Birds prefer solid comfort to fancy architecture. Any of these designs will be home sweet home to them.

THERE'S one important rule to remember about birdhouses. Fancy structures that look like miniature cottages or bungalows are strictly for the humans. Birds don't go for them.

Keep your birdhouses simple and you'll get more tenants. Paint the house if it is not made of redwood, cedar or other material that will stand the weather. But use only dull forest colors.

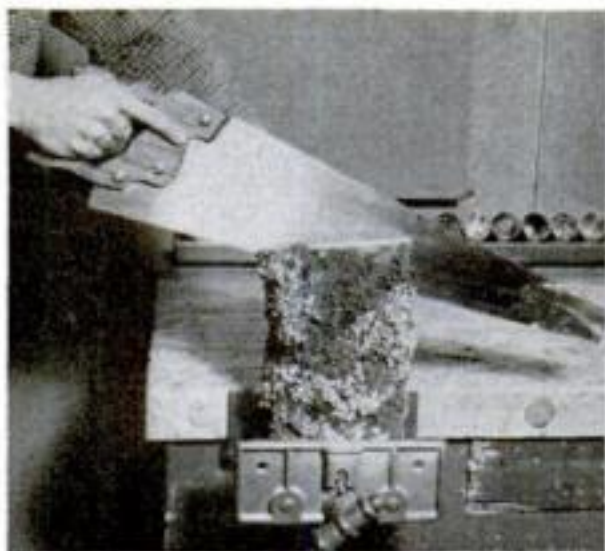
Five basic designs for birdhouses have been developed over the years, each design identified with a specific group of birds. With these houses, you can give lodging to any of the 50 or so birds that take to artificial nesting sites.

The best bird homes are made from wood

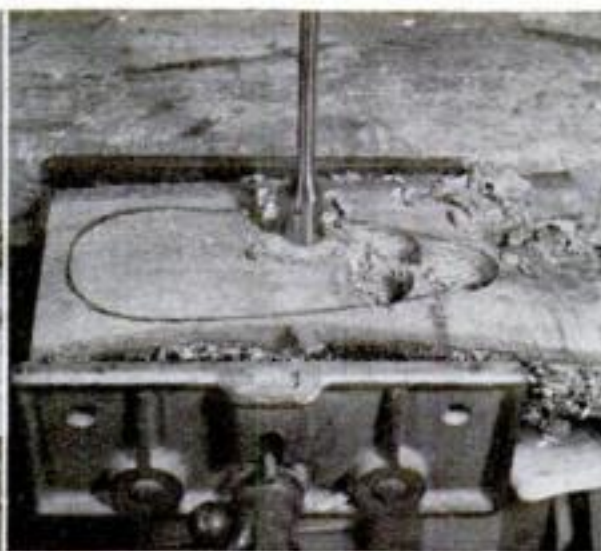
BIRDHOUSES

Birds	Floor of House	Height of House	Dia. of Opening	Opening Above Floor	House Above Ground
Bluebird	5" by 5"	8"	1½"	6"	5'-10'
Robin	6" by 8"	8"	—	—	6'-15'
Chickadee	4" by 4"	8"-10"	1⅝"	6"-8"	6'-15'
Titmouse	4" by 4"	8"-10"	1¼"	6"-8"	6'-15'
Nuthatch	4" by 4"	8"-10"	1¼"	6"-8"	12'-20'
House Wren	4" by 4"	6"-8"	1"	1"-6"	6'-10'
Tree Swallow	5" by 5"	6"	1½"	1"-5"	10'-15'
Flicker	7" by 7"	16"-18"	2½"	14"-16"	6'-20'
Downy Woodpecker	4" by 4"	8"-10"	1¼"	6"-8"	6'-20'
Hairy Woodpecker	6" by 6"	12"-15"	1½"	9"-12"	12'-20'

FOR YOUR POPULAR SCIENCE MONTHLY INFORMATION FILE



Log birdhouse is built by sawing a small piece of tree trunk lengthwise. A log 12" long and 6" in diameter will do for most small birds. The more moss and lichens, the more birds will like the house.



Pouch-shaped opening inside log makes ideal nesting place. Lay it out 4" wide at bottom on both halves of log. Remove excess wood by boring holes with brace and bit or a drill press.



Use **gouge** to finish the opening. Don't worry if your work is rough. The birds won't mind. Bore an entrance hole to suit the birds you want to attract and hinge the halves at the bottom.

at least $\frac{1}{2}$ " thick— $\frac{3}{4}$ " is better. Chunks from your scrap pile will probably build all you want. The heavy, thick ends of apple and orange crates also are fine material. If you live near a sawmill, you probably can get slabs of wood with the bark on. These are perfect.

All birdhouses should have a hinged section, usually the bottom or top, so the old nest can be removed and the box cleaned. A spray of five-percent DDT solution will

clean them up for the next tenants. Use brass hinges to avoid rust, and close the hinged part with a brass hook and eye.

A birdhouse can be mounted on a tree or post or fastened to the side of a building. Locate the house so that the opening is away from prevailing winds. Don't bother with a perch below the opening. A perch just makes life easier for cats and other predators. To foil them, a flaring sheet-metal guard can be placed below the nest.



Watch Out...

in MARCH for power failure. One break in your line can cause your power to go off, and the last ice storm of winter or the first windstorm of spring can cause the break.

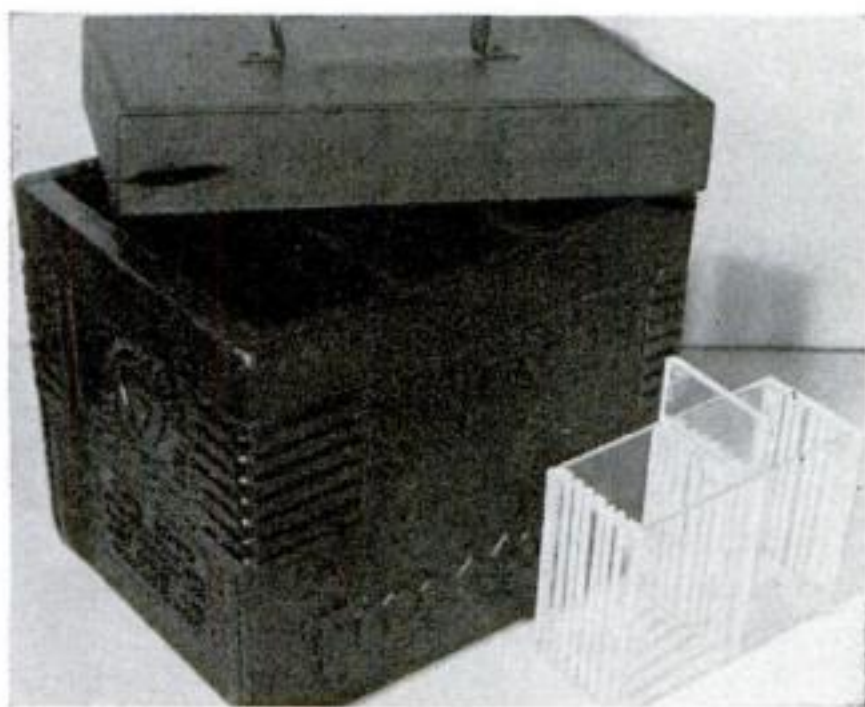
IF YOU are prepared, power failure will be no more than an inconvenience. For lights, keep a supply of candles, kerosene lamps, kerosene, matches, flashlights and/or a battery lantern. Heat can be had by operating a gas furnace manually (ask your utility company how to right now if you don't know); by improvising a grate in certain oil or convertible furnaces and burning wood, coal or cannel coal; by running the kitchen-range oven with the door open (don't leave it on while you sleep), or by using a small, Army-type synthetic-fuel stove. Water pipes won't freeze if a faucet runs.

Darkroom Equipment You Can Make



Padded Print Tongs.

If the jaws of photo print tongs do not fit well and let prints slip out, cut short lengths of rubber tubing and stretch them over the ends of the tongs like this to provide a good gripping surface.

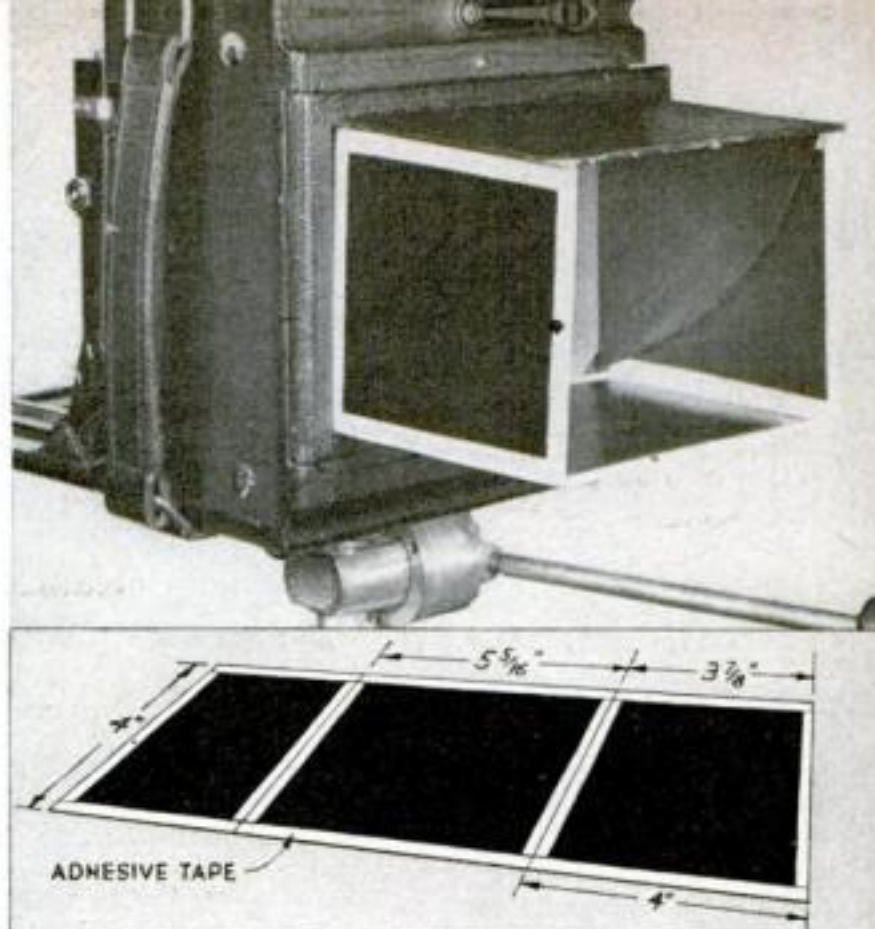
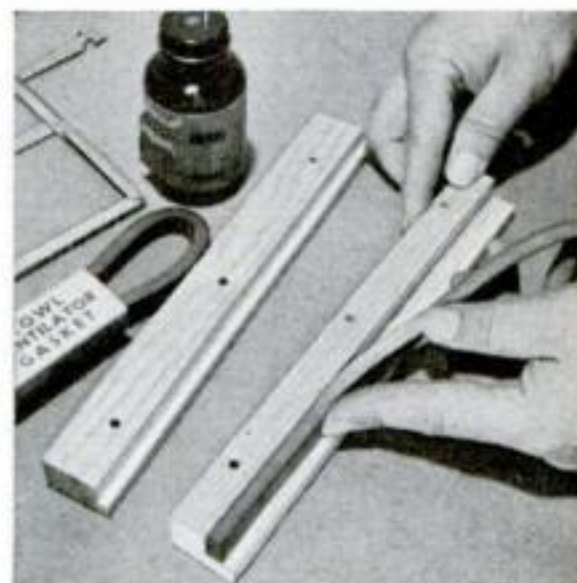


Battery Developing Tank. Battery cases make ideal developing tanks. The three divisions in this one are used for the full process—developing, stop bath and fixing. A light-tight cover made of plywood allows the room light to be on. Film is loaded into a holder (right above) made of sheets of $\frac{1}{4}$ " plastic. The end pieces were grooved $\frac{1}{8}$ " deep on a circular saw, and the parts then cemented together with acetone. This holder takes 12 pieces of $2\frac{1}{4}$ " by $3\frac{1}{4}$ " film. Larger sheets are processed in hangers. —Philip I. Wessling, West Roxbury, Mass.



Rack for Film Hangers.

Any cut-film hanger can be removed from this rack without disturbing the others. Just press the end sideways into the rubber weather strip until the opposite end is free of the supporting rabbet cut in the side of the rack. A hanger can also be put back the same way. —Louis Hochman, Sherman Oaks, Calif.

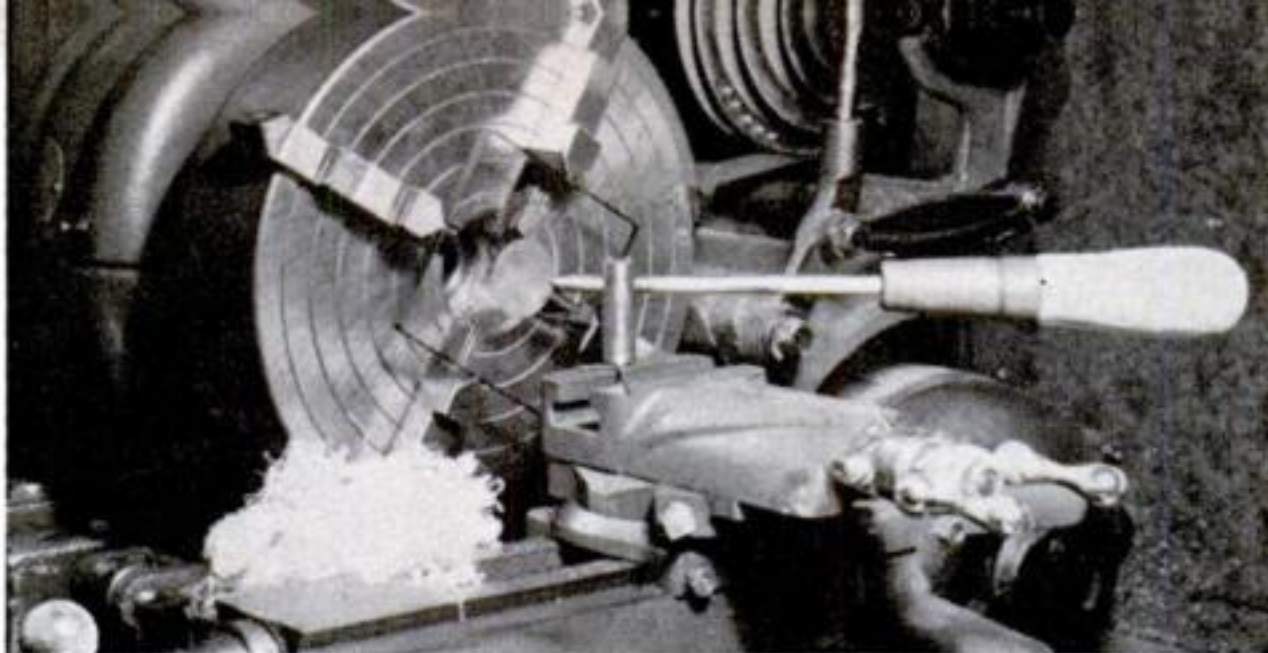


Homemade Hood Aids Focusing. Light that reflects up onto your ground glass can be minimized with this additional focusing hood. It is made from the metal film-backing sheet inside a film-pack container. Adhesive tape forms the hinges and covers the cut edges of the metal. The dimensions given in the sketch are for a 4" by 5" camera. —Glenn A. Wagner, Delmar, N.Y.

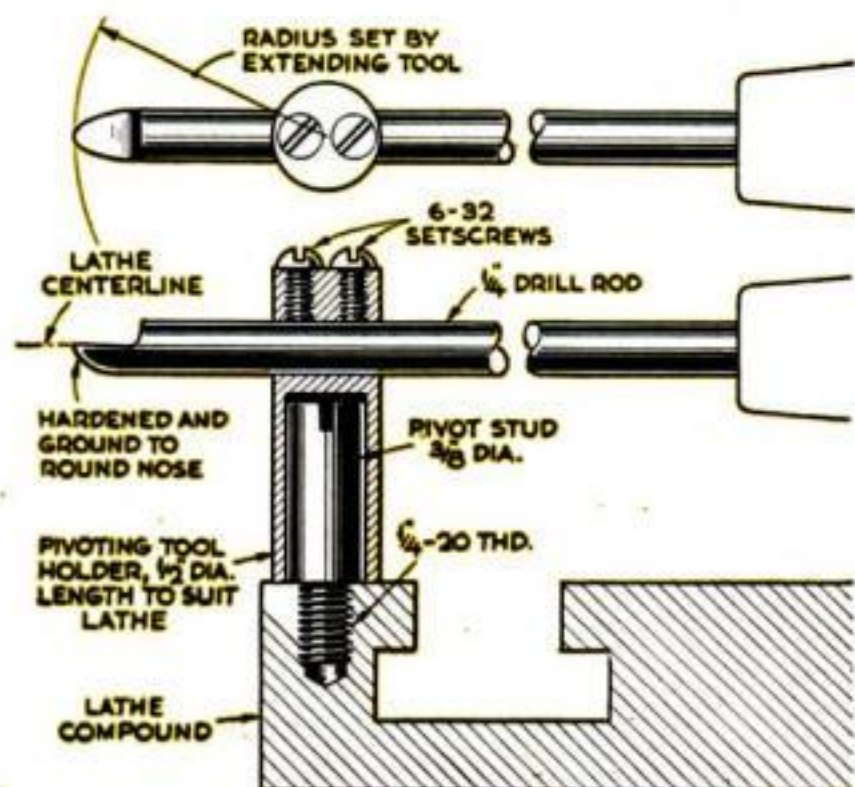


Roller Wipes Away Water, Too. Professional photographers usually use a rubber squeegee to wipe surplus water from prints on a ferrotype plate before applying a roller. Both operations can be done at once if you add a heavy windshield-wiper blade to a roller. Bolt the blade onto the handle with metal straps so that it will travel ahead of the roller. —Ken Murray, Colon, Mich.

NEW Shop Ideas



Jig Turns Inside Radius in Lathe. Turning concave depressions to any accurate radius is as easy as facing off a shaft end

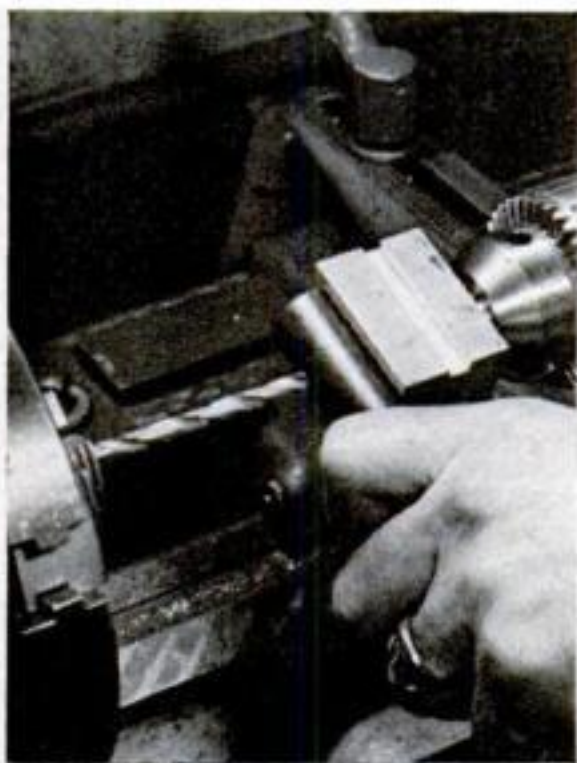


with the help of this inside-radius turning attachment.

The body, or pivoting tool holder, is turned from $\frac{1}{2}$ " drill rod and bored to fit closely over the $\frac{3}{8}$ " drill-rod pivot stud. The stud is shouldered and threaded $\frac{1}{4}$ "-20 to fit in a matching hole drilled in the compound. A slot cut in the top of the stud permits seating it securely.

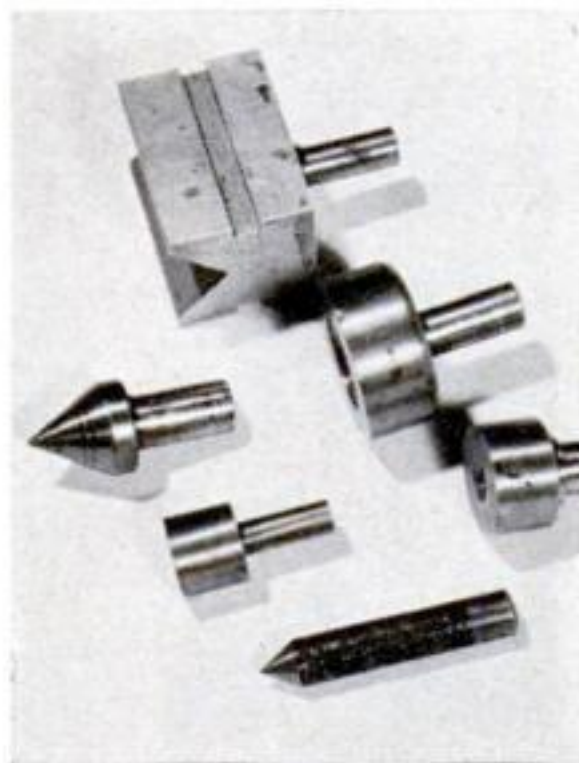
The upper, solid part of the body is drilled for the $\frac{1}{4}$ " drill-rod cutting tool. Two 6-32 setscrews lock the tool.

In use, the tool is mounted on the compound, set to the desired radius and advanced up to the work. The carriage is then locked and the tool fed into the work by advancing the compound. The tool is pivoted by moving the hardwood handle slowly back and forth. After each pass, the compound is advanced a few thousandths.—*Andrew Pfeiffer, Old Lyme, Conn.*

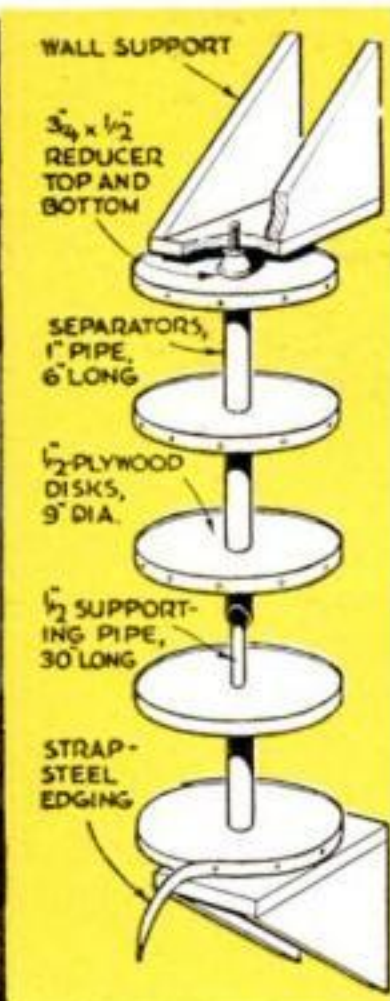


Tailstock Accessories.

These handy lathe accessories are all fitted with $\frac{1}{2}$ " shanks to mount in the tailstock chuck. This eliminates the necessity of removing the chuck to use a taper-shanked drilling pad or center for short jobs. The photo at left shows the V-block attachment in use. At right is an assortment of tailstock-chuck accessories which include V block, drilling pads and centers.



Bottle Brush Cleans Spindles. The stiff bristles of a baby-bottle brush make short work of cleaning chips and dirt out of lathe and milling spindles and tapered tool sleeves. They'll fit everything down to a No. 2 Morse taper and can be bought in any dime store.—*Will Thomas, Buffalo.*



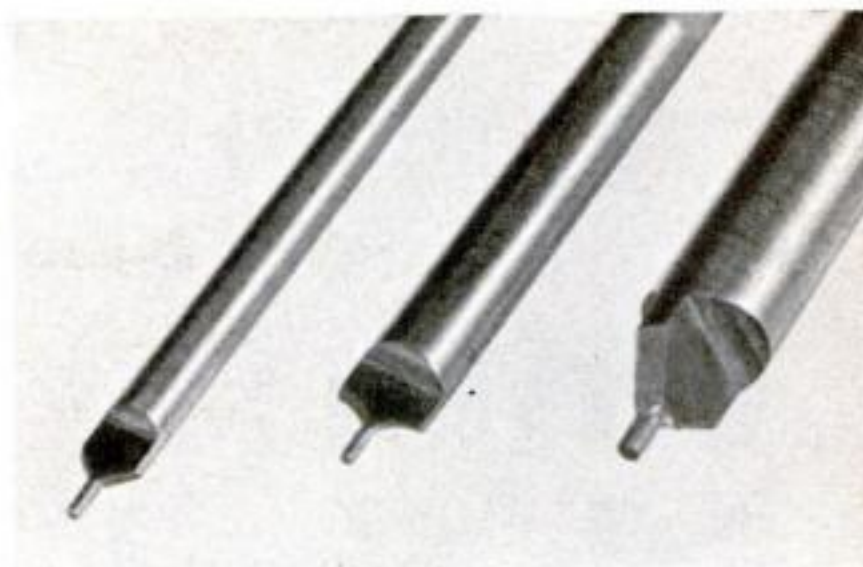
Revolving Shelves Store Parts. A large assortment of screws, nails and small hardware can be conveniently stored in a small space with the help of this five-tier Lazy Susan. Each shelf holds at least a half-dozen jars, and the entire unit revolves, making all jars readily accessible.

The plywood shelves are separated by four 6" lengths of 1" pipe. The shelves and separators are slipped over a length of 1/2" pipe and the assembly squeezed together by two reducing nipples. Floor flanges would do as well. The ends of the 1/2" pipe pivot in holes in the two wall supports. Steel straps, 3/4" wide, form a lip around the shelves to keep the jars from slipping off when the unit is rotated.—*R. L. Nelson, Sequoia National Park, Calif.*



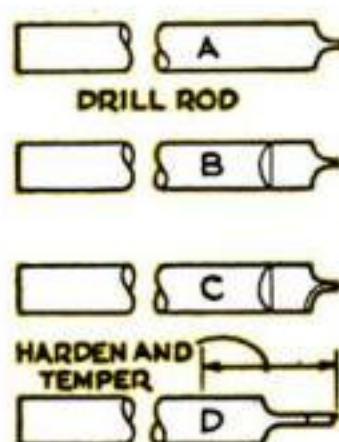
Lines Speed Grinding. When joining angle, strap or rod iron, it is often necessary to grind the meeting ends to approximate angles. An emery disk cemented to the disk sander will quickly do the job, and guide lines scribed on the table at 90° and 45° will permit bringing the

work up to the disk with fair accuracy without bothering to adjust the miter head.—*Floyd McGuckin, Ridgewood, N. J.*



Put Drill-Rod Scraps to Work. Short ends of drill rod are the raw material for a variety of small homemade tools to do special jobs.

Shown above and below are some typical cutters for use in the drill press. The shapes and purposes vary, but the method of making them is the same as for the fluting router immediately below: Turn the point to the desired shape in the lathe as



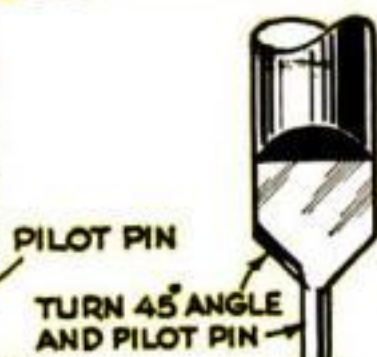
shown at A; grind two sides flat and file them smooth (B); file clearance to form the cutting edges (C); harden and temper the cutting edges (D).



FOR COUNTERSINKING OR DRILLING HOLES



FOR SHAPING ROUNDED CORNERS



FOR BEVELING EDGES

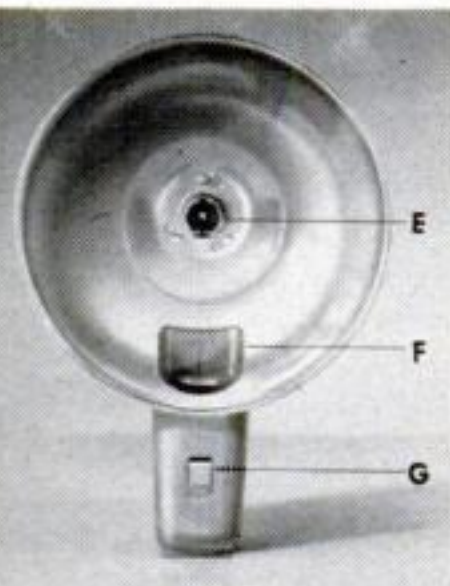
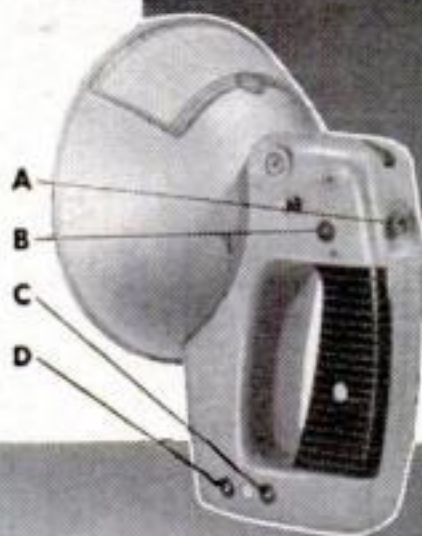


Catch it with "flash"

Some of your best snapshot opportunities happen indoors. *The new Kodak Ektalux Flashholder* "catches it" every time. Its 22½-volt battery-condenser power fires lamps dependably and uniformly—peaking time of lamps is more consistent. With Standard Bracket for use with most roll-film cameras, \$29.75.

Right:

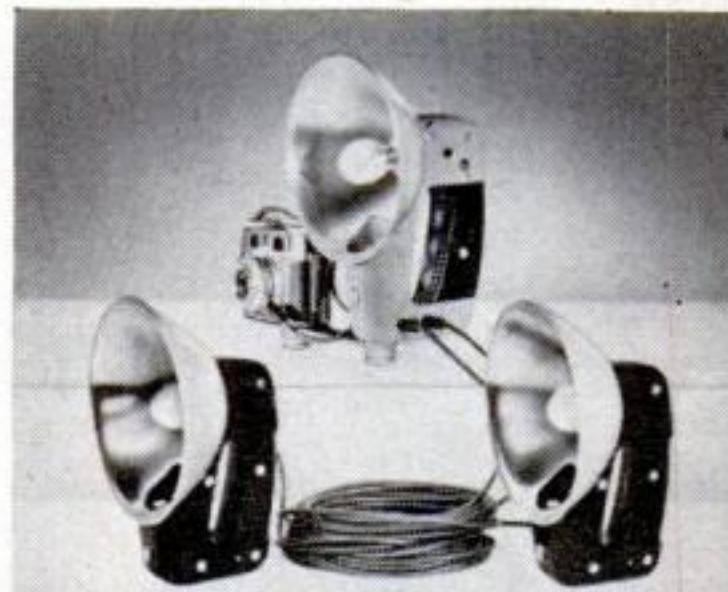
Accessory outlets on the "Ektalux"— Button **A** for Solenoid (\$15.40) permits tripping shutter from Flashholder. Outlet **B** accepts the Remote Release (\$4.71). Outlets **C** and **D** take Extension Units (\$12.40 each.)



Lamp system is flexible—For midget lamps, note socket **E**; provides for two-way focus. **F** is socket for medium-base lamps, removed by ejector **G**. Exposure table on back of reflector.



Ideal for press cameras, too—The Ektalux Flashholder can be fitted to most press-type cameras. Flashholder and camera lock together firmly and detach quickly. Kodak Ektalux Flashholder with Press Bracket, \$33.85.



Dependable multiple flash—Two Extension Units can be plugged into separate outlets on the Flashholder; another Unit can then be hooked to each. Socket in the base fits tripod or Kodak Flexiclamp.

Low price for new Kodak Standard Flashholder—\$8.25.

Here is dependable flash for most internally synchronized cameras. New rugged hand-grip battery case . . . new rubber cushion riveted to bracket . . . new heavy-duty lamp ejector spring . . . new, handy exposure table on back of reflector.



Convert your old Flashholder to never-fail battery-condenser power—Kodak B-C Flashpack delivers peak energy during battery life. Less battery, \$2.95.



Get into your own flash pictures—Attach Kodak Auto-Release to any camera equipped with cable release . . . set it . . . 10 seconds later shutter is tripped automatically. \$3.86.

"Has your tongue been **STUNG** lately?"



NO TONGUE-STING IN YELLO-BOLE PIPES



Let the Honey Girl show you why

Look! It's lined with
PURE HONEY!



★ STARTS SWEET!

★ SMOKES SWEET!

★ STAYS SWEET!

Don't smoke a pipe that tortures your tongue! Light up a Yellow-Bole... and *feel* the difference. Thanks to that pure honey lining...you can smoke your Yello-Bole to your tongue's content. No "Break-In Blues!" No stung tongue or irritated throat. Switch to a sweet-smoking Yello-Bole...today!

\$1.00 to \$2.50

YELLO-BOLE PIPES

WIDE VARIETY OF SHAPES...IMPORTED BRIAR

MARCH 1953 247

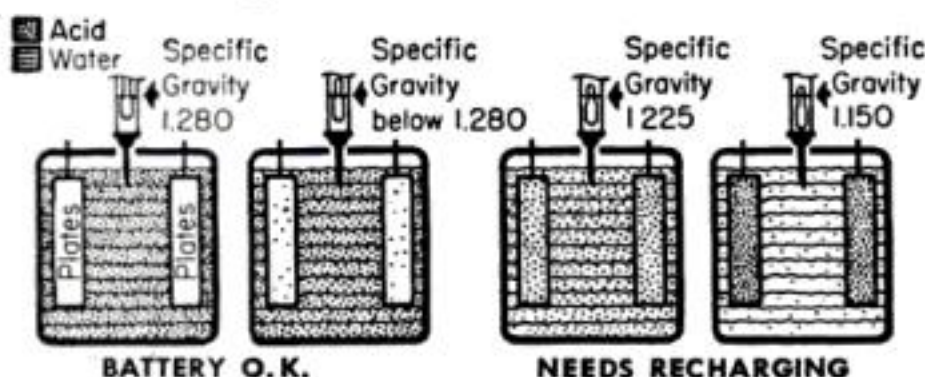


Care and Feeding of Engines

BY S. P. CORP

PAMPER YOUR BATTERY

Don't neglect your battery merely because it has power enough to operate your starter. Give it a few minutes' attention at least once a month. Be sure the mounting is tight. Use a mixture of baking soda and pure water to clean off all dirt and corrosion. Have specific gravity checked at any gas station. If it reads below 1.225 in warm weather or below 1.250 in cold weather, have it recharged.



Continued operation below charge permits a hard, crystalline sulphate to develop on plates. This will cause damage if battery is overcharged for a long time on a trip, or when voltage regulator is out of adjustment. Keep the charge consistently between 1.260 and 1.280.

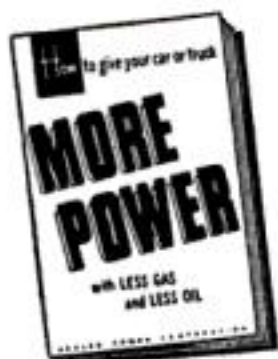
If your battery requires water every week, the charging rate needs adjustment.

WHAT CAUSES HARD STARTING?

Distributor, spark plugs, starter, battery, generator, voltage regulator, or wiring—any of these can contribute to hard starting. Watch all wiring for loose or corroded terminals. Spark plug and coil wires should be replaced if insulation is checked or cracked.

Your car has a one-wire electrical system. Current is returned to battery or generator through a "ground" formed by the metal of the body and engine. To insure a good ground, generator, starter, regulator, distributor, spark plugs and battery must all be securely fastened to clean, tight surfaces. The battery's woven-wire ground strap should have clean, tight connections.

If your starter is dirty, has worn brushes or loose connections, it may rob excessive current from battery or coil, preventing proper firing of spark plugs. A good engine tune-up includes a complete check of the whole electrical system.



WRITE FOR FREE BOOKLET

"More Power, Less Gas, Less Oil" is a free illustrated booklet on car care. Write for it, and learn how Sealed Power KromeX Ring Sets fight heat, friction, abrasion, corrosion—the four deadly enemies of ring life. Sealed Power Corporation, Dept. H-3, Muskegon, Michigan.

The Old Dog Wagon Puts on the Dog

[Continued from page 141]

only about one-fourth down. The O'Mahony company has an interest, therefore, in the owner's success and checks the proposed location before it sells every diner. Traffic past the proposed site is surveyed.

The prospective owner is combed over pretty hard, too. O'Mahony won't sell to an absentee owner because, with an absentee, more food goes out the back door than out the front.

If a location fails to pay off, a 1953 diner can be jacked up, put on wheels and hauled to a more promising spot. But so thorough are these surveys that not one O'Mahony diner has had to be moved in the past 10 years. Instead, bigger diners are continually replacing those whose business has outgrown them.

\$1,250 a Week

An owner's possibilities for profit are better than Jerry O'Mahony's were in 1913. Today the net may run to \$1,250 a week. "Financial security," says an O'Mahony circular, "is yours for the asking."

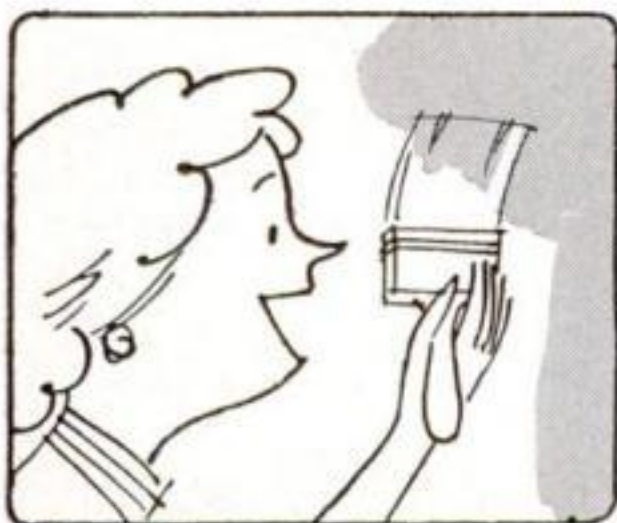
Martin Rich, who runs the Old Post Grill diner on U. S. 1, has gone out after that financial security with an O'Mahony diner. His menu is almost as long as the highway. He sells coffee only and also five-course dinners. He specializes in Hungarian goulash and seafoods. He offers your choice of salads, cold cuts, sodas, sundaes and a dozen categories of desserts. You can wash all this down with champagne (\$6 a bottle) or with anything else. Here Rich's is different from the typical diner, which does not serve liquor.

The kitchen at Rich's is a masterpiece of compactness. All cooking apparatus is condensed into a space the size of a truck body—friers, baking ovens, short-order grills, heavy-duty ranges, sinks, storage. The only food prepared in front of the customer is ice-cream dishes.

None of Rich's waitresses has to walk more than 34 feet in any direction to fill

[Continued on page 250]

PAINT YOUR WALLS THE EASY-GOING WAY with new Gold Bond Velvet!



GOLD BOND VELVET is the easiest-going wall paint you ever used! Ready-to-use without the usual mixing or thinning. Dries in minutes to a velvet smooth surface that won't crack, chip or peel.



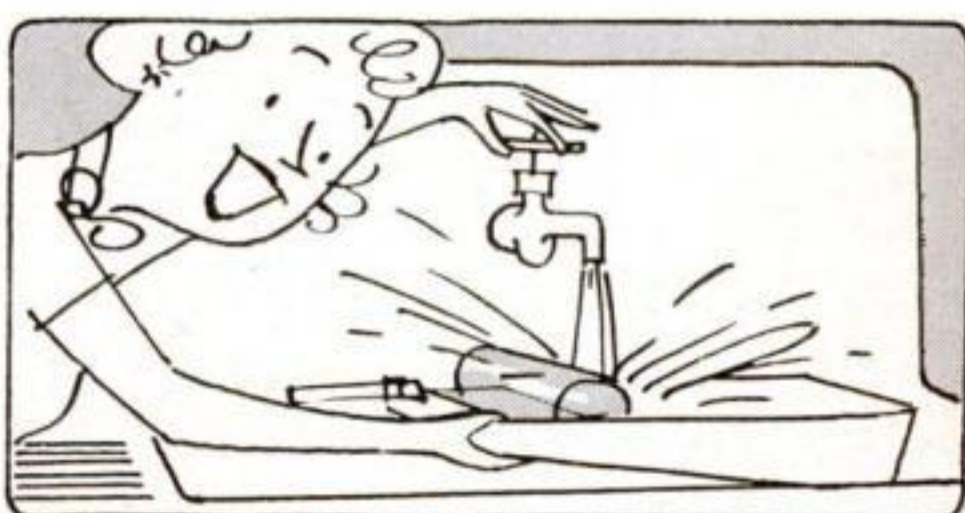
FLOWS ON! Just dip your roller or brush in Gold Bond Velvet and see how it goes on almost by itself! It eliminates what professional painters call "drag." No "painty" odor, either.



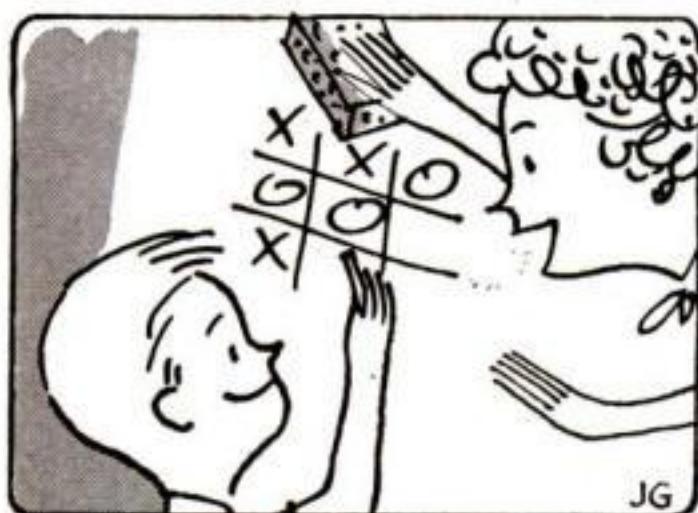
WITH ORDINARY PAINT you have to guard against lap or brush marks, touch-up spots. No worry with Gold Bond Velvet! This latex-base paint blends perfectly and gives a good job every time!



COVERS WALLS AND WOODWORK, TOO! Use Gold Bond Velvet over plaster, wallboards (including "taped" joints), primed wood or metal, concrete and previously painted surfaces.



EASY TO CLEAN UP! Brush or roller cleans off with plain water. Spatter or splash marks clean up with a damp cloth. No turpentine needed.



SCRUBABLE! Velvet can be scrubbed repeatedly without harm. Pencil, crayon, finger marks and food smears wash right off!

Ask your paint dealer or lumber and building material dealer to show you the 16 new, intermixable, Velvet colors (plus two whites). The orange and tan Gold Bond label is your assurance of another top quality National Gypsum Company product.



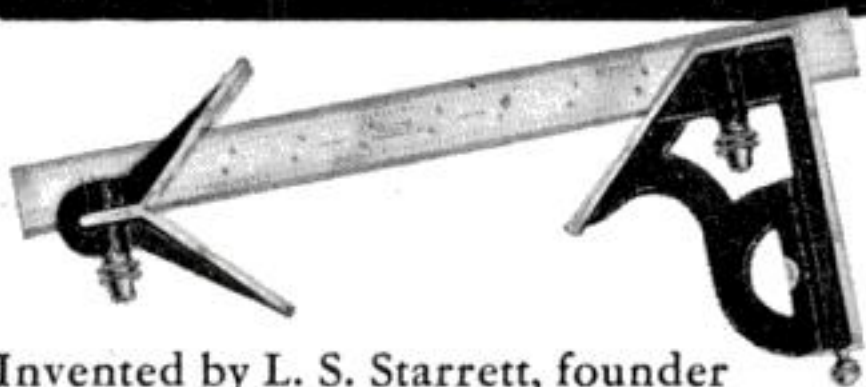
West of the Rockies, ask for Wesco Paints, products of Wesco Waterpaints, Inc., a subsidiary of National Gypsum Company.
NATIONAL GYPSUM COMPANY • BUFFALO 2, NEW YORK

MARCH 1953 249

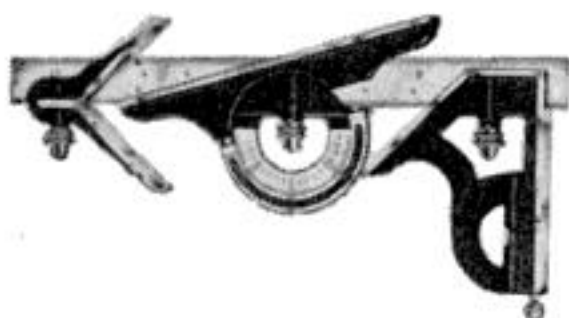
Handiest tool you can own

Starrett

COMBINATION SQUARE



Invented by L. S. Starrett, founder of The L. S. Starrett Company, the combination square combines a rule, square, mitre, height gage, depth gage, level, center gage and scribe — eight handy tools in one! Latest models feature hardened precision ground steel blade with bold figures and sharp, easy-reading graduations; new type quick-reversing lock bolt; easy-to-clean black enamel finish on square and center head; built in level; hardened scribe. Available in 4, 6, 9, 12, 18 or 24 inch sizes, at your Starrett Tool Distributor's.



COMBINATION SETS

With reversible or non-reversible protractor head, square head and center head. 12, 18, and 24 inch sizes.

BEVEL PROTRACTORS

Reversible or non-reversible protractor head, built in level, hardened blade. 12, 18, and 24 inch sizes. Also Metric.



SEND FOR IT — ONLY 10¢

Starrett "Tools and Rules" Book

shows the right tools for any measuring job. 50 pages, 100 pictures, helpful reference tables. Address Dept. PS



THE L. S. STARRETT COMPANY • ATHOL, MASS., U.S.A.



MECHANICS' HAND MEASURING TOOLS AND PRECISION INSTRUMENTS
DIAL INDICATORS • STEEL TAPES • PRECISION GROUND FLAT STOCK
HACKSAWS, BAND SAWS and BAND KNIVES

The Old Dog Wagon Puts on the Dog

[Continued from page 248]

an order. This allows Rich to maintain that 20-minute schedule, an important factor with the average check around 60 cents. His 92-seat diner has fed 2,500 persons in one day.

Diners Heading West

Observing the success of Rich and others, the O'Mahony company is expanding. It has just opened a plant in St. Louis, the first one to mass-produce diners west of New Jersey. Transportation costs from the factory to a site are high, and most of the 6,000 U. S. diners are in the East, near the New Jersey factories. But soon, the company hopes, O'Mahony streamlined diners will dot highways everywhere.

In the West, diners will have to compete with de luxe drive-ins, which are rare in the East. No problem, a diner executive said. Drive-ins have limited menus, he insisted, and predicted that diners would beat them.

Customers Come in Limousines

What the company doesn't add, enterprising owners will. One owner in the East put Baked Alaska on his menu and became a success. Dozens of owners have added tablecloths and freshly cut flowers to their tables. This has worked so well at one diner—in Aberdeen, Md.—that three regular customers arrive daily in chauffeur-driven limousines.

But a diner out on New Jersey 29 has added the crowning touch—a headwaiter, complete with tuxedo, who seats the guests. Yet if you approach this headwaiter in shirtsleeves, in overalls or behind a day's growth of beard, he will seat you promptly and won't even raise an aristocratic eyebrow.

END

It Always Happens

Science Prof: "What always results when a body is immersed in water?"
Coed: "The telephone rings."—*McCall Spirit*.

Riding High with a "25"



Sea-Horse 25

Once in a lifetime there's a motor like this—an engineering triumph! *Big* power, with *little* weight. Speeds over 30 mph—dazzling acceleration—yet *it trolls!* It's a powerhouse that sends your big boats streaking at express speeds. It gives wings to water skiers, drive to work boat operators, range to "big-water" fishermen—and reality to your dream of low cost **DEPENDable** outboard cruising! See your Johnson Dealer. Look for his name under "Outboard Motors" in your classified telephone book.

FREE! Write for the new Sea-Horse catalog which describes, in detail, the 4 great Johnsons for 1953. A motor for every outboard need.

JOHNSON MOTORS, 500 Pershing Road, Waukegan, Illinois
In Canada: Mfd. by Johnson Motors, Peterborough

FOR 1953 — FOUR GREAT ALTERNATE FIRING TWINS

- SEA-HORSE 3** — 3 hp. 32-lb. twin. Angle-matic Drive. \$145.00*
- SEA-HORSE 5** — 5 hp. Neutral Clutch. No shear pin. \$187.50*
- SEA-HORSE 10** — 10 hp. Gear Shift. Mile-Master Fuel Tank. Synchro Twist-Grip Speed Control. And *only*. \$275.00*
- SEA-HORSE 25** — 25 hp. Only 98 lbs! Gear Shift. Mile-Master Fuel Tank. Synchro Twist-Grip Speed Control. \$390.00*
- SHIP-MASTER REMOTE CONTROL** — Shift-and-throttle. Corrosion-proof. Snap fittings on Sea-Horses 10 and 25. \$29.50*



*Prices are f.o.b. factory, subject to change.
OBC certified brake hp at 4000 rpm.
Weights are approximate.



Johnson
SEA-HORSES
FOR DEPENDABILITY

THE ONLY MANUFACTURER WHO HAS BUILT A MILLION OUTBOARD MOTORS

1903 — GOLDEN ANNIVERSARY — 1953

SHAW
"DU-ALL"

Garden and Small Farm Tractors
STANDARD OF QUALITY FOR MANY YEARS

Rugged 1½ to 5 H.P. Walking Models
Do Everything in Gardening



5 H.P.
Walking
Model with
10-inch Plow

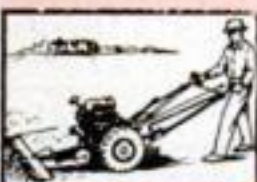
**Fast
and Easy**

You can save yourself a lot of work with a Shaw Du-All, the garden tractor that has

proved its efficiency and dependability for many years. Handle 6, 7, 10-inch plows with these stronger built, superior traction machines. Harrow, disc, plant, cultivate with Shaw quick mount tools. Use power take-off for many other jobs. Choice of 1½, 2½, 3 and 5 H.P. machines, with variable speeds, adjustable wheel widths, individual gang tool controls. None better than a Shaw Du-All for rugged work. Power turn models & power take-off attachments available.



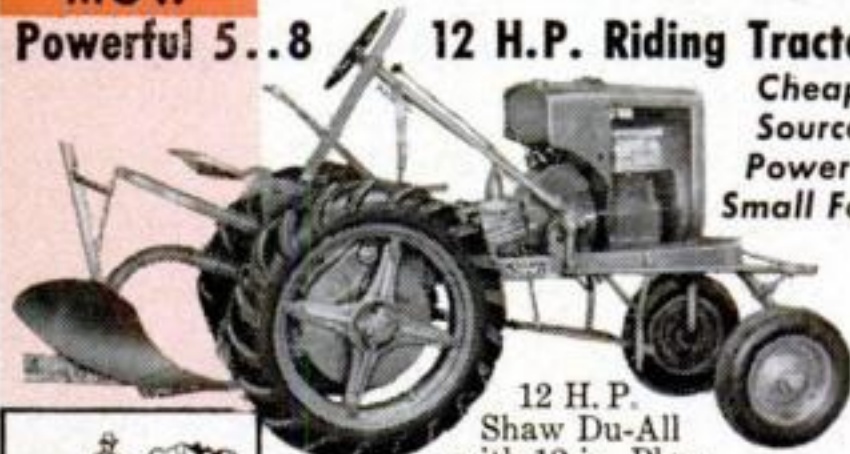
CUT WOOD



MOW

Powerful 5..8 12 H.P. Riding Tractors

**Cheapest
Source of
Power for
Small Farm**



12 H.P.
Shaw Du-All
with 12-in. Plow

Plow 4 to 8 acres daily. Cultivate fast and at low cost. Use this larger Shaw Du-All for all small farm ground preparation and cultivation... for mowing, raking, hauling, sawing, many other purposes. Simplified design and highly durable construction. High quality tools and all wanted power take-off attachments. Pulls 10...12...14-inch plows. Works between or astride 42-inch rows. Ideal machine for small farm or second tractor on larger acreage.



RAKE



BULLDOZE

See Your Nearest
Shaw Dealer for Demonstration

MAIL COUPON FOR FREE CATALOG

SHAW MANUFACTURING CO.
5703 Front St., Galesburg, Kansas
668-PS N. 4th St., Columbus, Ohio

Please send me Free Catalog and Prices on Shaw Du-All Garden and Small Farm Tractors.

NAME _____

ADDRESS _____

Gus Answers an Ambulance Call

[Continued from page 198]

"Gus, we can't wait much longer. I was too optimistic. This man's condition is getting worse."

"One second more, Doc." He leaned under the dash and looked at the switch. Nothing.

His mind flashed rapidly back over the situation. Press the starter button and nothing happened except the clicking of the solenoid. The starter motor itself had seemed all right before. A bad one always sounds or feels different—a looseness, a hesitation, a certain sloppy, grinding edge in the way it turns the engine over. The wiring was in good condition. He had spent possibly five minutes checking it over and there was nothing to be found.

Doc Decides to Go Back

"I'm stumped, Doc. Maybe another car will come along soon."

"Forget about getting to the hospital. We'll have to take him back to the farm. No phone within walking distance, and no time to wait for an ambulance anyway. We've got to get back some way."

"The farm . . . ?"

"I'll have to operate there. There's no other choice."

"Okay. I'll see if I can't push us around and start down the hill. Maybe we can get her going that way."

Gus put a shoulder to the car, turned the wheel and began pushing. It was hard, working against the pull of the hill, but the car began to move slowly, to turn, and then to roll.

Gus hopped in and pointed her down the road. He put the car in gear, heard a loud click and then the beautiful sound of the engine catching hold.

Gus Makes Haste Slowly

"Okay, Doc. I think we're all right now!"

"Thank heaven! Now get us to that farm as quickly as you can. We've got only a few minutes at most."

If Gus had ever experienced a nightmare in broad daylight, this was it. He gripped the wheel hard, trying to make time and yet avoid every bump in the road—and prayed that they would make it.

When they came at last to Williams' place, Gus swung the car gently off the road into the farmyard full of barking hounds. This

[Continued on page 254]

Fountain of youth for Fords



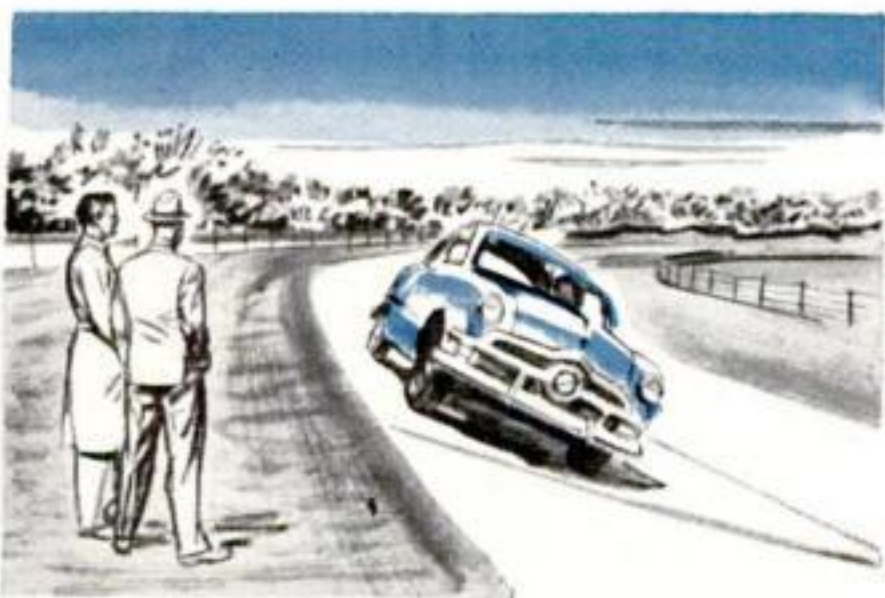
WHEREVER YOU SEE THIS SIGN
YOU CAN GET THE RIGHT PARTS
TO KEEP YOUR OLD FORD
RUNNING LIKE NEW



Made right—Because they're designed, "Track Tested" and proved by the men who designed *your* Ford, you can be absolutely sure that Genuine Ford Parts are the right parts for *all* Ford repairs.



To fit right—Because they're made exactly to Ford specifications . . . often at the same time as the parts that went into your Ford when it was new, you or a mechanic can install Genuine Ford Parts easily.



To last longer—Because they're given grueling track tests in Fords by Ford engineers, you can be sure that Genuine Ford Parts are your *best* parts buy. They *keep* your old Ford running like new.



And they're easier to get—There's a Ford Dealer or a selected independent garage who is near *you* ready to supply you with the Genuine Ford Parts you need. Just look for the famous blue sign . . . it's a sure sign of savings for you.



They keep your Ford all Ford

You can afford this great finish Sander



Finish Sands 10 Times Faster than by hand



Now, you can get satin-smooth finishes with only one tenth the work of hand sanding. Use the B&D Utility #44 Sander for preparing new surfaces, smoothing seams, refinishing furniture, removing old paint—even a beginner does a professional job with this light-weight (only 5½ lbs.), easy-to-use tool!

TRY IT TODAY at your hardware, appliance or department store. Has such *exclusive* features as: **KING-SIZE BOTTOM PLATE** extending beyond tool body for close work • **MODERN SWITCH HANDLE** close to housing for better control, less fatigue • **AUXILIARY KNOB HANDLE** offering three positions for sanding close to obstructions • **UNIQUE PAPER HOLDER** stays open while changing paper, frees both hands for job!



Bob Davis says: "This tool gives top performance you expect from the brand the experts choose . . . yet it's priced *below* tools of comparable quality. The name **BLACK & DECKER** means it's a real tool, not a mere toy, and I recommend it as a fine addition to any shop!"

Black & Decker



**PORTABLE
ELECTRIC
TOOLS**



WRITE FOR **FREE BOOK** of helpful, money-saving hints on home jobs to: **BOB DAVIS**, Home Service Dept. H3S, Towson 4, Md.

Gus Answers an Ambulance Call

[Continued from page 252]

time they carried Bill Williams into the kitchen, to the broad, enameled table.

"Now, put some water on to boil, while I get things ready. Then I'm going to ask you to administer the anesthetic."

"Golly, I don't know, Doc . . ."

"You can do it. Hurry now."

After the water was on, Gus found himself, at Doc's directions, slowly dripping ether into a wad of cotton around Bill's nose. The fumes rose heavily, sickeningly sweet. Gus felt the room begin to spin when he saw the first quick incision, but he closed his eyes and stuck it out.

Gus Nearly Passes Out

"Gus, more ether. You okay?"

"Sure . . . I'll make it." He avoided looking toward Doc. His knees were shaking.

Gus didn't know how long he had been standing there, fighting off the ether, with his eyes closed or turned to the blank wall. Then he heard Doc talking to someone far away, and felt a firm hand under his arm as he was led stumbling to the wonderful fresh air of the front porch.

"Thanks, Doc. Thought I was going to pass out."

"You'll be okay. Tough business for someone who isn't used to it. You should have seen me in medical school when I watched my first major operation. Carried me out like a pile of faded laundry! You did fine, Gus."

"How's Williams?"

"He'll be okay. Up and around in a few days. We made it just in time. I called an ambulance. They'll be here soon to take him to the hospital."

Fresh Air Does the Trick

"Well, I sure had a fright when that car stalled. Maybe I'd better set that carburetor before we try to leave here."

"You up to it?"

"I think so. This air is all I needed."

"Fixing the carburetor won't help with that other business, will it?"

"No. But tell me, how did you get the car started last time the starter wouldn't work?"

"Somebody was kind enough to give me a push. Why?"

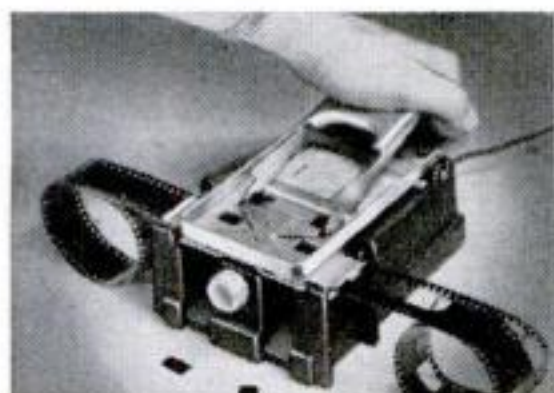
"You remember hearing a loud click?"

"Not offhand."

[Continued on page 256]

HOW TO MAKE YOUR OWN

3 DIMENSION COLOR PICTURES



AT LESS THAN SNAPSHOT COST!

Three dimension photography is different because it affords an opportunity for depth planning. Subjects appear to "come to life" in stereo pictures.



STEP NO. 1

All you need to know is sky condition and subject color. The patented View-Master Expo-Sure guide makes all other adjustments. No focusing necessary. Have film processed in the usual manner.

STEP NO. 2

Semi-automatic View-Master film cutter works quickly and easily. Film is registered perfectly to produce stereo pairs accurately die-cut to 1/1000 of an inch. You get 37 pairs on a 20-exposure film; 69 on a 36-exposure roll.

STEP NO. 3

Die-cut film slips into die-formed pockets. Photographically exposed marks on right and left pictures, which correspond with similar marks on film pockets, positively identify pictures and facilitate mounting.

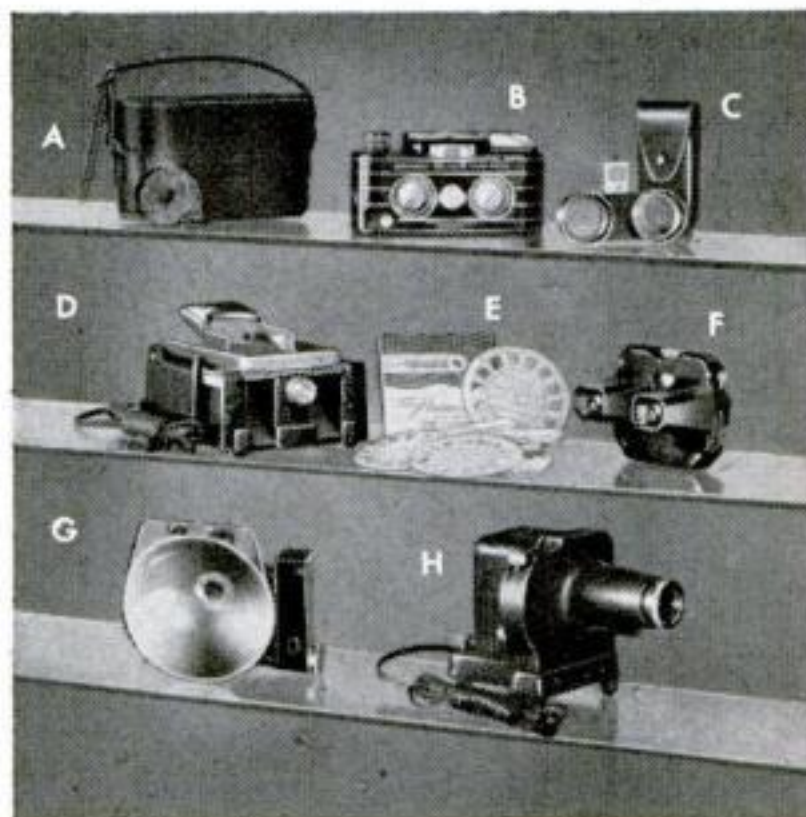


STEP NO. 4

The completed picture is viewed in three dimensions with a View-Master Stereoscope or in two dimensions with a View-Master Projector. An additional advantage is the huge View-Master library of scenic Reels with which to supplement your personal library.

Now, with the new View-Master Personal Stereo Camera, you can take brilliant, full color stereo pictures in thrilling "come to life" realism, for less than the cost of ordinary black and white snapshots. Persons with little or no photographic experience find it easy and fun to make breath-taking three dimension pictures of family scenes, children, friends, vacation travels. The illustrations show the simple steps of View-Master stereo picture-making. Adjust the camera and snap the picture. Have the color film processed. Use the View-Master film cutter to quickly and accurately die-cut stereo pairs. Then insert stereo pairs into blank Personal Reel for exciting viewing.

Integrated Units of the View-Master Stereo System



(A) Carrying Case (B) View-Master Personal Stereo Camera (C) Close-up attachment (D) Film Cutter (E) Personal Reels (F) View-Master Stereoscope (G) Flash attachment (H) View-Master S-1 Projector.

© Sawyer's Inc., Portland 7, Ore.

VIEW-MASTER

STEREOSCOPIC PRODUCTS ARE
AVAILABLE AT YOUR PHOTO DEALER



"Buy the
tool
that does... **5 kinds of
jobs well!"**

The SARGENT "GRIP-SNIP"*

1. **CUTS WIRE EASILY** . . . outside cutters cut wire even when it tightly hugs a flat surface.
2. **GRIPS LIKE A VISE** . . . a wrench-like grip that doesn't slip. Compound leverage multiplies power along entire length of jaws.
3. **HOLDS NUTS LIKE A WRENCH** . . . powerful parallel jaws and extra leverage prevent rounding corners.
4. **GETS INTO TIGHT SPOTS** . . . small nose of jaws permits working in close quarters.
5. **UNKINKS WIRE** . . . run wire between jaws, from either end, to straighten or pull it.

★ ★ ★

Don't be without your Sargent "Grip-Snip" another day. See 4½, 5½, 6½ and 8-inch lengths at your hardware dealer. Mechanics, sportsmen, farmers and handy-men call it their favorite. For further details, write Dept. 26C.

*Trade Mark



Sargent and Company
New York
New Haven, Conn.
Chicago

Builders Hardware and Fine Tools since 1864

Gus Answers an Ambulance Call

[Continued from page 254]

"Well, I heard one when we started rolling down that hill. I didn't have much time to think about it until now. Know what it means?"

Doc grinned. "I know nothing about a car's anatomy, Gus."

Russian Roulette with a Flywheel

"It means your car is playing Russian roulette! You need some work done on your flywheel. It has a worn tooth, and if that tooth comes in contact with the starter gear when you turn the motor off, it jams it up. All you get is the solenoid clicking when you push the button. Usually a little push or a bit of jouncing back and forth will free it."

"I'm confused, but I'll take your word for it."

"It might not give you any more trouble for a long time, but there's no point to risking it. I'll pick up a new flywheel for you first thing in the morning."

Gus started the engine, and richened the mixture until it was satisfactory. Then he sat down and stoked up his pipe.

Doc's Offer Is Turned Down Cold

"I'd better go look at my patient. He'll be coming out of dreamland pretty soon. While I do, why don't you think over my offer?"

"What offer, Doc?"

"Joining me in the medical profession. You wield a pretty mean ether bottle!"

Gus winced. "Next time you decide to pay one of your so-called hypochondriacs a visit, you do it by yourself. I've had enough. Give me a garage full of broken-down cars any day, and the good old smell of gasoline!"

Doc was laughing when he went inside, and Gus sat down and tried to remember how quiet the morning had been. **END**

Next month: Gus finds a golden thread.

Busman's Riddle

LET's say you are the driver going on a bus from New York to Pittsburgh. Twenty people get on at the New York terminal. In Newark, 14 more people are taken on. At the third stop, six passengers leave. No more passengers get on but several leave. The bus arrives at the Pittsburgh terminal with 19 passengers. Is the bus driver married or single?

ANSWER: You ought to know—you're the driver of the bus.—*The Franklin News*

**Here's a job you
can do yourself**



**Finish your attic
with
ARMSTRONG'S TEMLOK**

Here's the practical and economical way to expand your home. Build a comfortable extra room in your attic with walls and ceilings of Armstrong's Temlok Plank and Tile. It's an easy job . . . one you'll enjoy doing yourself.

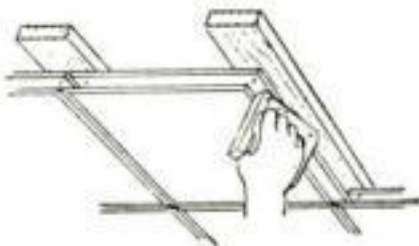
Armstrong's Temlok is a sturdy wood fiber material that builds, decorates, and insulates. Both Temlok Tile and Plank have the exclusive "Lok-Bevel" joint. This tongue-and-groove type joint conceals the nails or staples that hold the material in place and insures a tight, level surface.

Temlok's smooth factory finish is ironed on. Temlok Plank comes in a soft random coloring called "Suntan Blend." Temlok Tile is finished in both Snow White and Light Ivory.

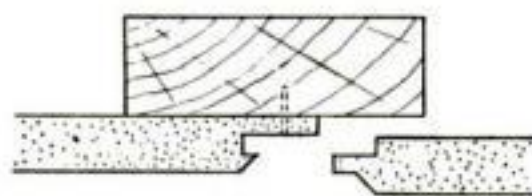
Ask your lumber dealer about Armstrong's Temlok. He'll show you samples and help you plan your job. For the free booklet, "New Ways to Remodel an Old Home," write Armstrong Cork Company, 9203 Ross St., Lancaster, Pa.



Nail 1" x 3" wood furring strips on 12" centers over the framing members. For extra insulation, staple Armstrong's Insulating Wool between knee wall studs and rafters.



Staple Temlok Tile or Plank to the furring strips. Shim if necessary for level surface. Stapling usually permits more rapid application, although nailing is equally effective.



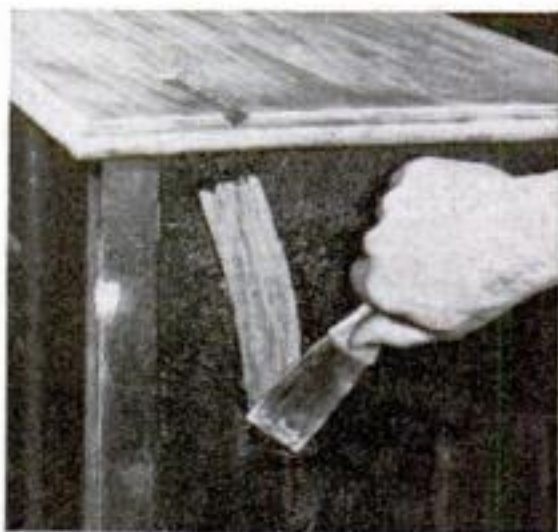
The Lok-Bevel joint conceals the staples and makes installation easy. It also allows for seasonal expansion and contraction, preventing unsightly open gaps at the joint lines.

ARMSTRONG'S BUILDING MATERIALS

Temlok® • M-67 Monowall® • Cushiontone® • Insulating Wool • Hardboards

Hints on How to Refinish Furniture

Step 1. Remove old finish—quickly, easily, with fast-acting Strypeeze. Brush on, let it set . . . off comes the old finish. (hint: sprinkle sawdust over Strypeeze. "Roll off" sawdust, Strypeeze and old finish.)



Step 2. Fill all holes, nicks — permanently and simply with Savogran Wood Putty. Tools easily, won't shrink. Now, sand entire surface with 6/0 sandpaper. (For cracks in plaster, use Savogran Crack Filler. It's the original patented quick-hardening water putty.)

Step 3. Refinish—before you start, be sure brush is clean. Savogran Kwikkeeze really cleans varnish brushes. Leaves no specks of old varnish, dirt in brush to mar finish. Apply stain, thinned shellac seal, then spar varnish or dull "rubbed effect" varnish in finishing.



SAVOGRAN

PRODUCTS . . . at better paint & hardware stores
Write for free helpful literature

SAVOGRAN CO., Dept. 28, 25 Huntington Ave., Boston 16, Mass.

258 POPULAR SCIENCE

"Soup" Fights Airplane Fires

[Continued from page 148]

eter protective cone of foam. When the jeep has exhausted its own supply of foam-making ingredients, it can hook up to a carrier's main foam supply.

The present jeep, which, like the Big Squirt, is experimental, cannot move while it is pumping foam. A later version probably will inch in on the fire.

Big Squirt Wallops Harder

The Big Squirt fights crash fires in the same way but packs a bigger wallop. Its 175-horsepower truck engine is for locomotion only. Each of two twin pumps is driven by a separate 140-horsepower engine. Two spray turrets are raised, lowered and swiveled by separate sets of three battery-operated electric motors. In about two minutes they can cover the biggest bomber, as much as 150 feet away, with a 15,000-gallon blizzard of snowlike foam. Ground-sweep nozzles lay down a safety carpet of foam as the truck drives closer to the fire.

The Big Squirt is commanded by a crew chief who stands behind safety glass at a remote-control panel on a "bridge" on top of the truck. He directs operations over loudspeakers. The firemen ride on each side of the truck to handle hose lines.

In the Squirts, the Navy feels that it has developed the best military crash-fire-fighting vehicles in the world. With more than 50 percent of civilian aircraft accidents taking place at or near airports, on take-offs or landings, the need for similar fast, light equipment to kill fire before fire kills people is obvious. **END**

Right Arm Is Wrong

THE doctor, after vaccinating young Tommy, moved to bandage the scratch.

"Wait a sec, doc," said Tommy. "Put that bandage on my other arm."

"But, Tommy," the doctor protested, "the bandage is to protect your sore arm—so the boys at school won't be hitting it."

"You don't know the kids in our gang, doc. If you want to protect my vaccination from them, put the bandage on my good arm."—*L & N Magazine.*

I WASTED MONEY BECAUSE A GAUGE WAS MISSING

by JOSEPH CATANZANO

That's a fact . . . I'd been tossing dollar bills out of the window of my car because a gauge was missing from my dashboard. I didn't realize *how much* I'd been wasting until I installed the Mile-O-Meter my wife gave me for my last birthday. That's the day I began to save . . . I've got four new tires now to prove it.

MOUNTED MILE-O-METER ON MY DASH

The instructions that came with the Mile-O-Meter seemed complete enough, but I didn't realize *how*



complete until I lifted the hood of the car and began to follow directions. I actually finished the entire installation without doing anything really

complicated! I mounted the Mile-O-Meter itself at the corner of the dashboard on the driver's side, using one of the screws on the windshield flange to hold the bracket. I didn't have to drill a single hole.

GAS SAVINGS ARE MOUNTING

I got my first shock when I took the car out for a trial spin that day. The Mile-O-Meter indicator practically shouted at me that I was pouring gas out of the tail pipe! I tried it again, this time keeping a light foot on the accelerator. The difference in gas consumption, shown clearly on the relative miles-per-gallon scale, almost floored me . . . I was traveling practically as fast, with just about as much power, yet I was using far less gasoline than before! Now all I have to do is drive so the Mile-O-Meter indicator points as far to the right as possible. When I do that, I know I'm getting my best mileage . . . and the gas savings are really mounting up to prove it.

AVOIDED COSTLY REPAIRS, TOO

About three months ago, I noticed that the indicator on the gauge flickered downward every second or two. I didn't *hear* anything wrong with the engine, but according to the tune-up chart supplied with the Mile-O-Meter, I had a spark plug that wasn't firing properly. By following directions, I found which plug was fouled, replaced it . . . and saved myself expensive trouble later on. Another time, the Mile-O-Meter indicated that my carburetor needed adjustment — and, with the tune-up chart, enabled me to adjust it myself! The way the Mile-O-Meter works sounds a bit complicated, but as

(Joseph Catanzano, 75 Mary St., Arlington, Mass., is typical of thousands of enthusiastic Mile-O-Meter owners. We thought his experiences with the instrument would interest you.)

I understand it, the gauge is kind of like a doctor with his finger on your pulse all the time . . . it gives a continuous report on the general "health" of your engine. It does this by measuring the vacuum in the intake manifold, just as a mechanic does when he's tuning up your car. As a result, I know when adjustments are needed to avoid those wallet-busting repairs.

I'M REALLY SAVING MONEY!

It's the truth . . . I'm really saving money. I'm getting three or four more miles to every gallon. I *see* (instead of *hear*!) when my engine needs attention. And, I've been able to make many of the minor repairs and tune-ups myself, because the Mile-O-Meter and its chart showed me how.



YOU OUGHT TO OWN A MILE-O-METER

I admit it . . . I'm sold completely on the Mile-O-Meter. If you don't have one on your dashboard, the chances are you're still wasting just as much money as I did. You've got everything to gain by installing a Mile-O-Meter . . . and nothing to lose, because they're always sold on a "money back if not completely satisfied" basis. You ought to send your order in right away.

\$14⁹⁵

- Deluxe Illuminated.
- 3 1/2" diameter.
- Chrome trim.

\$9⁷⁵

- Standard Model.
- 2 1/2" diameter.
- Plated trim.

ORDER NOW

SEND **DELUXE** **STANDARD**
MILE-O-METERS AT \$.....

NAME

ADDRESS

CITY

ZONE () STATE.....

☐

Check Enclosed

☐

Money Order Enclosed

☐

Send C.O.D.

Orders are shipped within 24 hours anywhere in the U. S. A. We pay postage when payment accompanies order. Add 35c for special delivery, if desired. Each Mile-O-Meter is gift-packaged, with all accessories and instructions included.

GALE HALL ENGINEERING CORP. DEPT. 331
NORTH HAMPTON, NEW HAMPSHIRE

PERMATEX FORM-A-GASKET®

**"Seals Cylinder Head
Gaskets...so it will
seal about everything"**



**Manufacturers and
mechanics every-
where use—
FORM-A-GASKET**

A foreman of a big engine rebuilding shop says, "We coat both sides of all cylinder head gaskets with Form-A-Gasket and brush it into the stud and cap screw threads. It is a positive seal without cementing."

Keep Form-A-Gasket handy in your workshop as an all-purpose gasket and pipe fitting compound.



3 TYPES for your convenience

No. 1 sets quickly, dries hard. No. 2 sets slowly, is non-hardening. Aviation No. 3 is a brushable liquid that sets to a paste. All three make leakproof, pressure-tight seals in threaded, hose and flange connections.

Send for free illustrated catalog

PERMATEX COMPANY, INC.
Brooklyn 35, New York

Central Cooling Next?

[Continued from page 155]

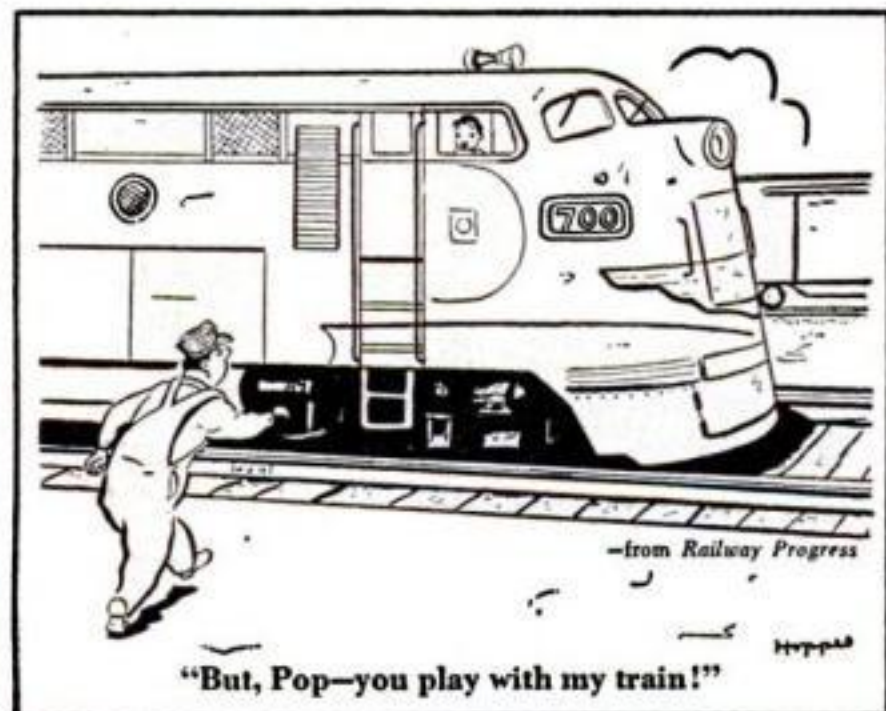
An air-conditioning unit can be used in a basementless house as well as any conventional heater. In the London Homes project at New Orleans, it was installed in a five- by six-foot utility room off the central hall. The unit can be carried into the house in two sections, each of which will go through a 30-inch door.

Manufacturers hope, of course, that home air conditioners will be sold for old as well as new houses. If you are thinking of replacing your furnace with one, the first thing to do is to have an expert check the adequacy of the duct system. Cooled air warms up faster than warm air cools off. Therefore it must be circulated faster than warm air, and the duct system must have about 25 percent more capacity. A room that can be heated with one or two outlets needs three for efficient cooling.

Cleaning Chores Lightened? Well, Maybe

You might think that cool comfort is all the excuse needed for an air conditioner. But the advertising writers claim all sorts of incidental benefits. They work themselves into a lyrical frenzy describing the high-toned living possible in an air-conditioned house.

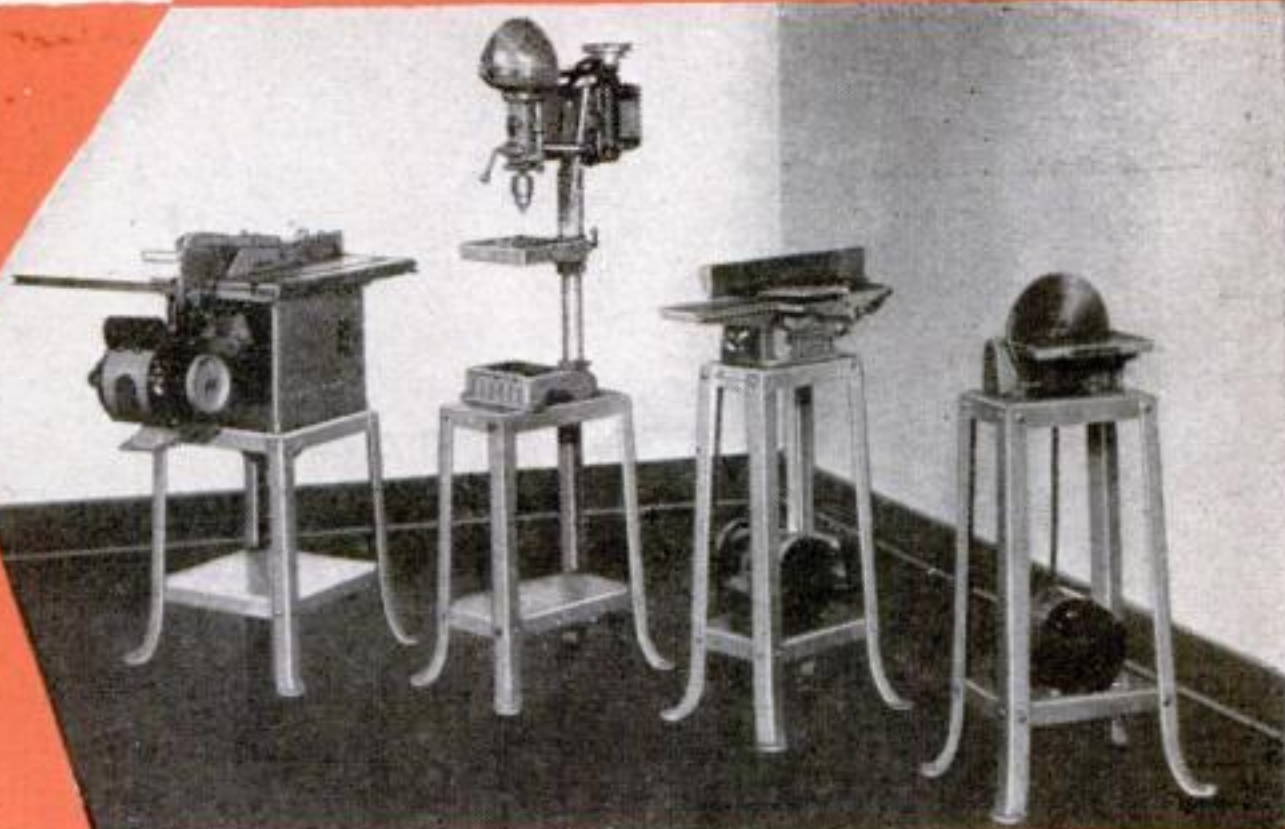
Some of this may be true, but if you hear a horselaugh when the salesman says that an air conditioner banishes the dust mop and the vacuum cleaner, that will probably be the little woman, who believes that wherever there are people, there is cleaning to do. END



... THE *Only* WAY TO HAVE

THE RIGHT BASIC TOOLS IN 1 COMBINATION UNIT

the DELTASHOP



Many long-awaited features distinguish this revolutionary new 3-foot square, one-motor combination tool that does 98% of home repair and improvement jobs. For example:

the *Only* combination of individual "MUST" tools Basic Delta tools, ready to do the work they are designed for—in the normal sequence of operations—without wasting time on set-ups and adjustments.

the *Only* combination tool built around a tilting arbor circular saw The most-used tool is your saw—on the DELTASHOP, it's a rugged machine—and, the blade tilts, not the table.

the *Only* combination tool with a true jointer As soon as you saw a board, you need a jointer—the only fast, easy way to get a true edge. Circular saw and jointer are a natural team.

the *Only* combination tool you can change to individual tools As your shop expands, you may want individual tools. Only your DELTASHOP makes it possible—no loss of your original investment.

the *Only* combination tool you can assemble "a tool at a time" Get these basic tools one at a time and combine them later into a one-motor unit.

the *Only* combination tool that gives so much for so little This unbeatable unit can be yours for ONLY \$209.95*—complete with steel stand. Your Delta dealers' easy payment plan makes it a pleasant and painless purchase.

*Motor and motor accessories extra.

▶ A complete drill press—does mortising, carving, shaping, cuts mouldings and many others, in addition to drilling.

▶ A big-capacity jointer—makes a true, "finished" edge in one swift pass; planes boards up to 4" width, makes old pieces like new.

▶ Big, rugged circular saw with *tilting blade*, safest, most accurate type of saw: cross-cuts, rips, bevels, miters, every sawing job.

▶ Handy disk sander puts a satin finish on any surface, curved or flat; also grinds, buffs, polishes—a tool of many uses.

DELTA QUALITY POWER TOOLS
Another Product of Rockwell

DELTA POWER TOOL DIVISION
Rockwell Manufacturing Co.
504C N. Lexington Ave., Pittsburgh 8, Pa.



- ☐ Please send DELTASHOP literature
☐ Please send Homecraft Catalog
☐ Please send name of Delta dealer



Name.....
Address.....
City.....Zone.....State.....

MARCH 1953 261

Do it better with

STANLEY TOOLS

Have more fun—add these top quality Stanley and "Yankee" Tools to your tool box or workshop and make the most of your time and talents. They're designed for professionals, priced for the occasional user. See them at your dealer's.

Stanley Nail Hammer "100 Plus"—The Aristocrat of hammers. Alloy Steel Head. "Ever-life" hickory handle. Power balance for perfect driving.

Stanley Extension Rule No. X226—"100 Plus"—4-way reading. Extension slide feature with "mistake-proof" direct reading for inside measurements.

Stanley Combination Square No. 122. Level glass and scribe in handle. Polished blade with deep, accurate figures and graduations.

"YANKEE" TOOLS



STANLEY
TOOLS
1952-1953
100th
ANNIVERSARY

STANLEY TOOLS
New Britain, Connecticut
THE TOOL BOX OF THE WORLD

STANLEY
Reg. U.S. Pat. Off.

"Yankee" Push Drill No. 45. Ideal for craftsmen, hobbyists and handymen... makes quick work of boring small holes. Complete with 8 drill points in full view magazine handle.

"Yankee" Spiral Ratchet Screw Driver No. 130A. Fast worker for driving or drawing screws—saves time and muscle. Quick-return spring repositions handle automatically.

Book for all tool users—"How to Work with Tools and Wood" \$2.00



STANLEY TOOLS, 433 Elm St., New Britain, Conn.
(In Canada: Send to Stanley Tool Co. of Canada, Ltd., 433 Stanley St., Roxton Pond, Quebec)

Please send me:
☐ "How to Work with Tools and Wood" (T-135) I enclose \$2.00
☐ FREE Stanley Rule Folder
☐ FREE "Yankee" Tool Book.

Name _____
Street _____
City _____ State _____

HARDWARE • TOOLS • ELECTRIC TOOLS • STEEL STRAPPING • STEEL

How We'll Live on Mars

[Continued from page 162]

sure suits and enter its artificial, pressurized atmosphere. Then they proceed with setting up the interior fittings.

Will Be Anxious to Explore

They will not long be satisfied to remain holed up in their base, but will be impatient to fare forth and explore the planet.

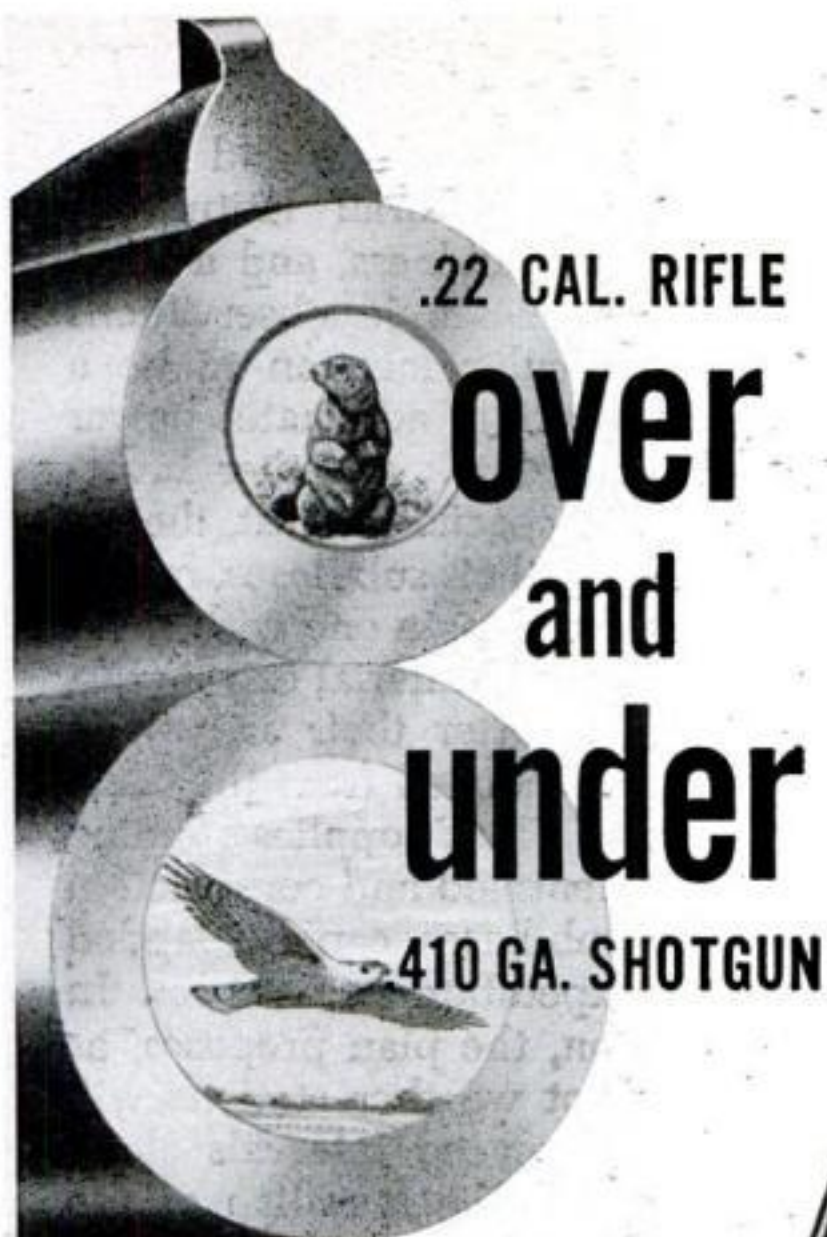
Mars is believed to be relatively smooth—with no discernible mountain peaks, and variations in height of probably no more than 2,000 to 3,000 feet. On foot, the explorers should be able to reconnoiter the flat terrain to considerable distances from their base camp. The low gravity on Mars—which has only half the Earth's diameter and 1/10th of its mass—will lighten the load of their oxygen and pressure gear. The explorers and their trappings will weigh scarcely more than one-third as much as on Earth, and they can bound along with giant strides.

Engines Need No Air

Vehicles of special design may take them farther afield, plans for the expedition suggest. Granted that lack of oxygen for combustion rules out conventional engines, possible expedients remain—for example, a power plant burning fuel oil and hydrogen peroxide, which would furnish the needed oxygen. Units of this sort could drive several small tracked land vehicles and, also, airplanes needed for transportation between the main base and advance sub-bases set up later. Since the low lifting power of the rarefied Martian atmosphere is only partly countered by the low gravity, airplanes would need wings of four times' normal area; but there is little doubt that such craft could function on Mars. Flights would skim the planet's surface, giving a good view and avoiding the difficulty of climbing into still thinner air.

A site proposed for the main base, from which these excursions would radiate, is at 20 degrees south and 350 de-

[Continued on page 264]



.22 CAL. RIFLE

over
and
under

.410 GA. SHOTGUN



A lightweight, rugged, many-purpose over-and-under gun. Upper barrel shoots all .22 cal. rimfire cartridges; lower barrel, .410 shot shells. Single trigger. Single sighting plane. Selector button permits instant choice of either barrel. Two-way top opening lever. Walnut stock. Takedown.



First in the Field



The famous all-purpose gun! SAVAGE MODEL 24

The choice of *either* an accurate .22 cal. rifle or a dependable .410 gauge shotgun is yours—*instantly*—when you're afield with the Savage Model 24 over-and-under.

It's the most versatile gun on the market today—ideal for fun, fur or feathers. Use the accurate .22 cal. *upper* barrel for plinking, informal target shooting or small furred game. Then, with a flick of the thumb, the dependable .410 ga. *lower* barrel is ready for flying pests, game or targets.

The Savage Model 24 "over-and-under" is as compact, lightweight, streamlined and good looking as it is practical—the perfect many-purpose gun for use on the farm, at camp, or for all-around utility. See it at your dealer's. Write for catalog of Savage, Stevens and Fox shotguns and rifles.

SAVAGE ARMS CORPORATION
Firearms Division Chicopee Falls, Mass.



SAVAGE

SAVAGE • STEVENS • FOX Rifles and Shotguns

SAVAGE • WORCESTER Power and Hand Lawn Mowers

MARCH 1953 263

If You Make Painting a Hobby-



You'll get a lot more real satisfaction and pride of ownership out of a home that is clean and neat and trim in a fresh coat of paint! Pays its own way by improving your property, too!

Because Archer Pol-mer-ik contains polymerized oil, it gives you a tougher, more durable paint film than ordinary linseed oil. When you reduce your paints with Pol-mer-ik, they brush easier, level better, and give you a smoother, dirt-resisting finish. Wonderful brush conditioner, too!

Handiest single product in your house or shop. Does the job of a dozen specialized products. A few of

POL-MER-IK'S 101 HANDY USES:



REFINISHING ANTIQUES

PROTECTING LADDERS



SEALING SCREWS

PROTECTING GUN STOCKS



ARCHER
Pol-mer-ik
LINSEED OIL
PROTECTS MOST EVERYTHING

How We'll Live on Mars

[Continued from page 262]

grees west, Martian latitude and longitude. The near-equatorial latitude is dictated by Mars' coldness, and a wind map based on telescopic observations shows this particular location to be a windy one, assuring adequate power from wind generators. At other favorable locations of special interest, the explorers will set up their sub-bases, miniature versions of the main one with room for six men apiece. Material can be dispatched to them after their arrival, in guided missiles launched from the Mars satellite station. Thus, supplies running low can be replenished and construction materials for sub-bases can be landed wherever the expedition wants them. In the same fashion, the plan proposes, as many as 46 robot weather stations will be set down at spaced intervals along Mars' equator and the meridian of the main base, and will automatically transmit their instruments' readings to it by radio.

Astronomy Sets Return Date

And so the main base would be a beehive of activity—receiving radio reports from advance parties and automatic weather stations, and studying photos and animal, vegetable or mineral specimens brought back—up to the moment, chosen for the return journey.

Relative positions of Mars and Earth will be most favorable for a return trip just 449 days after the outbound space voyage. The planned stay on Mars of 430 days, mentioned earlier, provides an extra 19 days "allowing time for the group to be transferred back to the orbital ships for the return trip."

This plan leaves open the mechanics of getting the party back to the Mars satellite. The Mars base may be dismantled and its central cylinder reconverted to a rocket ship. Or a completely new ship may be assembled out of parts dispatched from the satellite station.

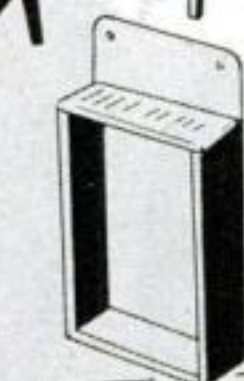
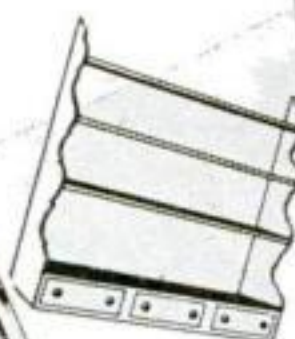
Of course the success of this venture of the future will depend upon the most

[Continued on page 266]

Have Fun WHILE YOU **SAVE**
HUNDREDS OF DOLLARS FINISHING,
REMODELING OR FURNISHING YOUR HOME!

Atlas

8" TILT/ARBOR SAW



**DOES MORE THINGS
 QUICKER, BETTER!**

For "professional" workmanship and efficiency in your home shop get this big, dependable Atlas saw. Ask your Atlas dealer to show you its patented "lift-off" double-locking rip fence, its heavier construction, bigger capacity, precision-ground grey-iron table, and smoother controls. You'll find no other 8" saw gives you such dollar for dollar value. See it today, or send for catalog.

SHAPES!

DADOES!

CUTS TENONS!



Equip your Atlas saw with low-cost moulding head and cutters, and you're set to handle joinery, dados, shaping for cabinets, windows, doors, trim!

NEW 20 PLAN BOOK

Original furniture designs by a nationally recognized authority. Step by step instructions and plans, all thoroughly tested. Finest book of its kind ever produced — only 50¢ post-paid, 65¢ outside U.S.A.



SEND THIS COUPON FOR CATALOG

325 N. Pitcher Street, Kalamazoo, Mich.

☐ Please send free tool catalog

☐ Inclosed is _____ for _____ 20 Plan Books.

NAME _____

ADDRESS _____

CITY, STATE _____

Atlas

DEPENDABLE QUALITY TOOLS SINCE 1911

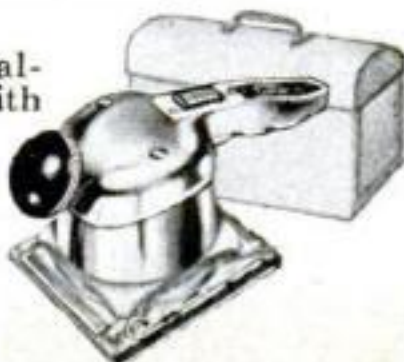
Do it
yourself
with



Build, repair, install, finish or refinish—at your convenience, at low cost. Powerful SpeedTools take the drudgery out of work, help you do "professional" quality work in a hurry.

No. 150 SpeedSander

An all-ball-bearing, orbital-motion, finishing sander with powerful 3450 r.p.m., A.C. induction motor and cast aluminum body. **\$34.50**



150-K SpeedSander Kit

The Sander with Accessories including: deep contour pad, finishing plate, felts for free abrasives and wet rubbing, lamb's wool bonnet, 90 sheet abrasive covers, etc. in fitted steel carrying case. **\$49.50**



No. 1000 SpeedSaw

$\frac{1}{4}$ H.P. Universal Motor, cast aluminum housing, safety shut-off switch. Cuts all angles to 45°, any depth to 1 $\frac{1}{8}$ " **\$29.95**

SpeedDrills

(for metal or wood)

Extra power, high speed, electric drill with cast aluminum cases, and geared chucks.

No. 200-J $\frac{1}{4}$ " SpeedDrill **\$19.50**

No. 400

$\frac{1}{2}$ " SpeedDrill **\$39.50**

also other sizes, types.



Drill Kits

Several fast selling kits. Painters and Householders Kit (illustrated) is typical. It has: $\frac{1}{4}$ " Hornet Drill, Abrasive Discs and rubber backer plate, grinding wheel, wire brush, buff, etc. In attractive display carton. **\$19.95**

Write for catalog

Speed Way MANUFACTURING CO.

1864 So. 52nd Ave. • Cicero 50, Illinois

How We'll Live on Mars

[Continued from page 264]

elaborate preparation. And hitches can occur despite the best of planning. On Earth, construction delays caused by unexpected bugs are merely irksome; on Mars, they may be fatal. Everything has got to click.

And so the initial landing on Mars must necessarily be an adventure fraught with the utmost peril. But if history repeats itself, there will be no dearth of volunteers, prepared to gamble their lives to advance the frontier of human knowledge.

END

The Final Blow

AT A recent shipyard launching, the woman who was to christen the ship was nervous. The shipyard manager asked her if she had any questions.

"Yes," she replied. "How hard do I have to hit the ship with the bottle to knock it into the water?"—*L & N Magazine*.

Uncle Sugar Changes Name

STATESIDE, or the U.S., was Uncle Sugar to World War II GIs—Uncle for the letter U and Sugar for the letter S. A new phonetic pronouncing alphabet for air-ground communications recently adopted by the International Civil Aviation Organization now makes it Union (U) Sierra (S).

Here is the new alphabet:

A—Alfa; B—Bravo; C—Coca; D—Delta; E—Echo; F—Foxtrot; G—Golf; H—Hotel; I—India; J—Juliett; K—Kilo; L—Lima; M—Metro; N—Nectar; O—Oscar; P—Papa; Q—Quebec; R—Romeo; S—Sierra; T—Tango; U—Union; V—Victor; W—Whiskey; X—Extra; Y—Yankee; Z—Zulu.

Phonetic numerals do not exactly follow the king's English:

0—Ze-ro; 1—Wun; 2—Too; 3—Tree; 4—Fow-er; 5—Fife; 6—Six; 7—Sev-en; 8—Ait; 9—Nin-er.

There are no words for 10 or 100. It's Wun Zero or Wun Zero Zero. For 1,000 it's Tousand.

The new alphabet words, ICAO experts claim, are pronounced with much the same sounds in almost all languages. The Civil Aeronautics Administration also has adopted the system, but points out that it is not mandatory. It is expected that the military services will go along.

IDEAL FOR HOME CRAFTSMEN...

PRECISION SHEET METAL WORK

Proved in aircraft plants to be best for cutting metal accurately to guide lines of any simple or complex pattern. Now available for home workshops.

- exclusive tension washer maintains uniform tension on cutting edge for precision accuracy.
- lightweight, powerful, sturdy
- cuts 20 gauge sheet metal
- exclusive no-pinch handles
- cuts perfect circles left or right
- cuts square points left or right
- cuts straight work faster, easier
- 2 1/2" blades
- 12" overall
- wt. 2 lbs.

Exclusive territories open for representation

with
TRU-CUT®
SNIPS



\$4.95

Post Paid

At your Hardware Store or

ORDER DIRECT

SINCE 1885

J. CARTWRIGHT & SON
MALAGA, CALIFORNIA

Save that PAINT BRUSH

— now more valuable than ever

Perfect
for
NYLON BRUSHES

BEFORE



AFTER

**10c
25c**

**KEEP
BRUSHES
LIKE
NEW
WITH
DIC-A-DOO**

At Paint,
Hardware, Dept.,
and 5 & 10¢ Stores



Patent Cereals Co.

Geneva, New York

CEILING CRACKED? NEED MORE ROOM? WANT TO Modernize YOUR HOME?

Do the job easily,
quickly at low cost with

UPSON PANELS

or CEILING TILE

For Cracked Ceilings:

No messy replastering! No ordeal of housecleaning! Apply **Upson Kuver-Krak Panels** on furring strips right over old plaster. Unique floating fasteners eliminate face nailing. Waterproofed and washable, **Upson Ceiling Tiles** are 12-in. sq., applied with matching color pins! Both give you a beautiful new crackproof ceiling in a matter of hours!

For Modernization:

Upson Panels saw like wood. Take screws, nails, fixtures. Available in a variety of widths, thicknesses and surfaces—at your lumber dealers! **Strong-Bilt Panels** for new construction, 3/8" panels for lighter work. Pebbled or smooth surfaces—plus new **Striated Panels** for a modern look! Trademarked for uses.



Upson Floating Fastener



Closet under stairs



Beautify your fireplace



Extra closet in bedroom



Your own bar

THE UPSON COMPANY

5103 Upson Point, Lockport, N. Y.

I enclose 10c for 32 page Idea Booklet. Include Instruction Sheet for applying Upson Ceilings and working drawings for Storage Wall FREE.

Name _____
Street _____
City _____
State _____



Guy and Dolly Handle Heavy Stones

IT WAS a case of paying \$15 a ton for building stone or collecting the stones myself. That's why I built this winch-equipped dolly. The bed of 1½" oak rolls on 10.50 by 4 pneumatic tires. For the crane, I used ½" by ½" by 2" channel steel with two pieces bolted back to back for each leg. The winch has a 30-to-1 ratio and is rated at 1,000 pounds.—*Scott Seegers, McLean, Va.*

Uses for Eye-Dropper Bulbs

WHEN you clean out the medicine cabinet, save those old eye droppers. The cut-up rubber bulbs can be used for lots of things,



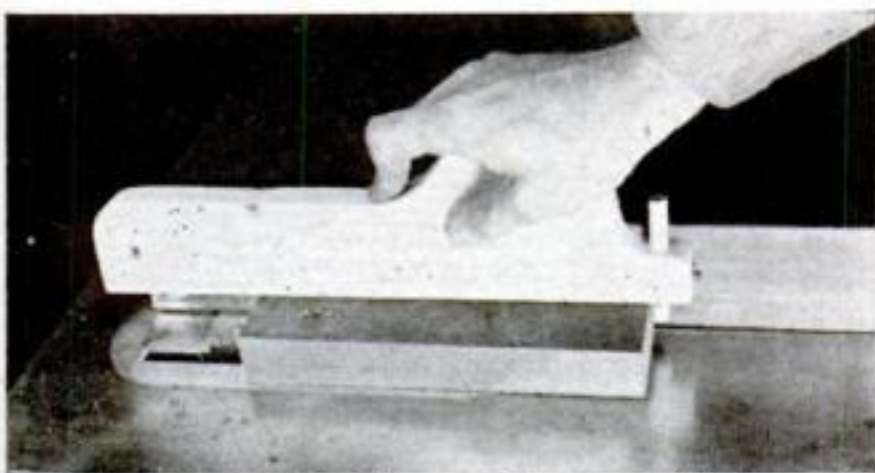
as shown in the drawing. The little shoulder on the end becomes a washer, the tip, a pad for a small object. Rubber bands can be cut from the bulb, and it can also be used as an insulator in a radio or other electrical device.—*Frank Shore, NYC.*

Rods Improve Shallow Closet



WHEN a closet is too shallow to handle hangers on a conventional clothes pole, a number of rods may do instead. Locating the rods close together—say, every 6"—lets you stagger the hangers and makes stored clothes easier to see and reach. The ⅜" rods are supported by two parallel wooden strips.—*Walter E. Burton, Akron.*

Push Stick Holds Work on Saw



WORK is guided past the saw blade and held firmly against the table surface by this adjustable push stick. The ⅜" dowel at the rear of the jig is held in place by a wood screw and can be raised or lowered for stock of various thicknesses. Should the blade cut into the dowel when ripping thin slices, no harm is done and it can be quickly replaced.

The pusher is made from ⅜" or thicker lumber.—*Walter Haase, Hartford, Conn.*

Scissors Make Thin Pliers



REACHING deep into tight places where your fingers or ordinary tweezers can't quite make it, an old pair of scissors with V-shaped notches filed near the tips becomes an indispensable tool for fine assembly work. Small nuts, washers and screws can be easily handled and placed. The scissors can still serve their original purpose as shears because cutting is nearly always done near the pivot screw.—*Arthur Trauffer, Council Bluffs, Iowa.*



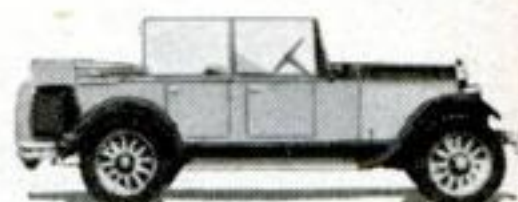
OLD FRIEND OF OLDSMOBILE



1911 Autocrat Roadster



1921 V-8 Sport Roadster



1927 De Luxe Touring



1930 Convertible Roadster



1936 Convertible Coupe



1947 Convertible Coupe

**AC Spark Plugs are
Original Equipment
on nearly as many
new cars as all other
makes combined**

AC Spark Plugs have been used on every Oldsmobile since 1911. And AC engineering advancements have kept pace with today's high-powered, high-compression engines like the 1953 "Rocket." These modern ACs have insulators of patented **CORALOX**, the material that has made all previous types of insulators obsolete. **CORALOX** gets hot quicker to burn away oil and wet carbon deposits . . . resists the deposits of oxide coatings from fuels . . . stays clean longer . . . provides 4 times greater heat conductivity . . . has 3 times the mechanical strength . . . 10 times greater electrical resistance at high temperatures. These outstanding **CORALOX** advantages mean:
GREATER GAS ECONOMY—SMOOTHER PERFORMANCE—LONGER PLUG LIFE



1953 Oldsmobile FIESTA —
Exciting New Sports Car



AC SPARK PLUG DIVISION



GENERAL MOTORS CORPORATION



FIRST
IN POWER IN VERSATILITY
IN ACCEPTANCE

Ingersoll-Rand
ROTARY ELECTRIC
IMPACTOOL

Ingersoll-Rand IMPACTOOLS stand alone . . . in power delivered without kick or twist . . . in acceptance, through more use by mechanics every day than any other power tool . . . in versatility that enables you to do all these things better, faster.

LOOK! RUNS AND REMOVES NUTS

— even frozen nuts no wrench could budge—in one-tenth the time! Also Drills • Reams • Taps • Drives Screws • Drives and Removes Studs • Wire Brushes • Saws Holes • Drills Masonry • Drives Wood Augers.

Standard Attachments handle all operations. 1900 rotary impacts per minute—forward or reverse—do all the work. Motor never stalls . . . can't burn out.



3 SIZES fit every need . . . 4U, 8U and 34U (extra heavy duty). Size 4U Impactool only \$120.00, also available in metal kit with multi-purpose attachments. Sold by all leading automotive jobbers and industrial distributors. Ask for a demonstration or write for catalog.

894-18

Ingersoll-Rand
Dept. S-3, 11 Broadway, New York 4, N.Y.
ORIGINATORS OF IMPACTOOLS—AIR AND ELECTRIC

5,000 Railroads Run for Fun

[Continued from page 102]

ball rolling when they simplified the outward appearance of the locomotive with their Diesel engines. Roomy cabs make it possible to hide a powerful little gasoline engine in a small scale model, and apart from some form of reversing gear and a chain drive to a set of trucks, that was all the would-be garden rail-roader was waiting for.

Not that all Diesel-locomotive models are bargain-basement buys. The ones used by the amusement parks, today, often cost as much or more than a comparable steam job. At least one such model, built by Lawrence W. Sauer of Minneapolis and operated in Minnehaha Park, represents 27 months of full-time work.

Convincing Diesel Locomotive

But Casey Jones Jr. doesn't have to worry about hauling revenue loads. With a small, one-cylinder gasoline engine, some exterior plyboard and a little ingenuity, he can turn out a very convincing Diesel locomotive for less than the cost of an assembled O-gauge model.

Probably his biggest headache is the reversing and speed-control hookup to the wheels. In Bath, Pa., an auto dealer is marketing a simple device for buyers who are willing to limit their Diesel output to one horsepower. This is a friction spool with a reverse-lever throw and a chain drive to the axles. In addition, Robert E. Miller offers castings for two types of locomotive trucks and running gear for a number of freight-car types.

It all adds up. The garden railroad is about as far advanced, today, as indoor model railroading was in 1940. And this pleases the real craftsman. He doesn't want construction kits that you can shake together. It's more fun to say:

"I built this baby up from the grass roots."

END

Simple Explanation

Policeman: "How did this accident happen?"

Motorist: "My wife fell asleep in the back seat."—*L & N Magazine*.

Sportsmen Rally to the "Action Test" Ride

PERFORMANCE MAKES

KIEKHAEFER

MERCURY

AMERICA'S MOST-WANTED OUTBOARD

FOR '53!

Take an "action test" ride with any of the five magnificent Mercurys for 1953! *Feel* the surging, singing power as you crack the throttle. *Listen* to the soft-throated murmur of Mercury's sweet-running powerhead as you sample its new superior idling speeds. *Thrill* to the quick-responding performance *only* a Mercury can deliver!

Then *choose* the outboard that's "most wanted" in America, according to independent surveys. Move *up* to a Mercury—safety engineered by experts who make new outboard history with every new model they introduce!

See the new Mercury models at your dealer's . . . and ask him for an "action test" ride. He's listed in the yellow section of your phone book. Write for FREE catalog, "Tomorrow's Outboard—Today."



NEW Fishin' Five Has Everything!

MERCURY MARK 5—with sensational new PUSH-BUTTON Neutral Clutch • 5 HP Alternate Twin • 360 degree steering • Full weedless operation • Superior idling for smoother, slower trolling • Full Jeweled Power*

NEW All-Purpose Ten

MERCURY MARK 15—with Reverse Gear and Neutral • 10 HP Alternate Twin • New Continental Styling • Superior idling for smoother, slower trolling • Equipped with 6 gal. remote fuel tank • Full Jeweled Power*

*Ball and roller bearings throughout



**Kiekhaefer Corporation
Fond du Lac, Wisconsin**

Features of Mercury motors are protected by issued or pending patents.



Buy your
P&C Tools
from this
Handy
Display

**TIGHTEN 'EM DOWN
WITH SPEED AND EASE**

Every nut and bolt tightens up faster and easier when you use a P&C Wrench. Perfect fit on heads prevents slipping and skinned knuckles. Tough, special analysis P&C steel can take years of hardest usage.

Send 10c today for P&C's complete 48-page catalog. Has all wanted info on over 300 tools.

P & C

P&C HAND FORGED TOOL CO.
Dept. F-353, Box 5926, Portland 22, Ore.

Fully guaranteed
"The BEST tools money
can buy"

\$100.00 A WEEK ^{IN YOUR} SPARE TIME!

Assemble and Install
Buckeye Screen and Glass
Combination STORM WINDOWS

(Glass and screen panels are interchangeable in summer and winter)

Install 10 Combination Storm
Windows—Make \$100.00 Profit! You Pay Only
\$6.65

- Shipped In Knocked-Down Form.
- Tens of Thousands Already Sold.
- Either Redwood or Aluminum Types.
- No Finer Quality Available.

Here's your golden opportunity to turn spare hours into big money! In just a few hours a day you too can make more money than you ever dreamed possible—in both summer and winter—assembling Buckeye Combination Storm Windows. Imagine making \$10.00 or more on every Buckeye Combination Storm Window you can assemble and install! Yes, that's the kind of clear profit you can make. Assemble 10 windows, make \$100.00 (about 7 hours time after a little experience). This is no get-rich-quick-scheme but a legitimate, sound way for you to make additional money in your spare time. You risk nothing—no tools to buy, no big inventory needed. Just order storm windows as orders pour in. We have been in business twenty years, sold tens of thousands of these top quality redwood or aluminum storm windows. Our reputation is your guarantee of quality.



FHA FINANCING THROUGH YOUR BANK

Yes, Buckeye Storm Windows are approved by FHA (Federal Housing Authority). You or your customers can pay as little as \$5.00 a month for their storm windows, take up to 36 months to pay! No down payment. Your local bank will be pleased to give you full information.

**WRITE FOR DETAILED
INFORMATION TODAY!**

**SOME ATTRACTIVE
DEALER TERRITORIES
STILL AVAILABLE!**

THE BUCKEYE SCREEN & WEATHERSTRIP CO.

1378 S. 22nd Street, Columbus, Ohio

272 POPULAR SCIENCE

Now You Can Have A Dry Basement with beautiful colored walls and floor

PLASTEX gives long-lasting protection against water. Also bright, colorful, easily washable walls and floors. Basements painted with PLASTEX in 1939 are still dry and attractive. Water up to 10 ft. has been successfully kept out by PLASTEX.

PLASTEX is not a water mixed material. It is formulated of synthetic resins especially to resist water pressure. The hard glossy PLASTEX finish is not easily soiled.

PLASTEX is also excellent for use in kitchens, bathrooms and for interior trim—where resistance to water, grease, etc. is necessary. PLASTEX is available in many colors making possible lovely color combinations. Easily applied by brush.

Color chart and complete information will be sent on request.

PLASTEX

**Steel Protection &
Chemical Co., Inc.**

353 Bridge St.
Mooresville, Indiana

own your own business! earn up to \$75 A DAY CLEAR PROFIT in your back yard or basement!

**MAKE CONCRETE BLOCKS With Amazing New
LOW PRICED GENERAL BLOCK MACHINE**

**NOW! Big Building Boom
Profits Within Your Reach**

You don't need much cash to cash in on the building boom! New high speed, low cost General Block Machine produces up to 1,000 concrete blocks a day for homes, factories, buildings, garages. Your profit mark-up is 100% to 150%! Fool-proof, easily operated, sturdy steel machine can make any size from 4" to 12". These superior 3-core blocks meet all building code requirements for foundation, chimney, corner, sash and many other types of blocks. Works indoors or out. Sand, cement and water available anywhere! Simple operating instructions and mixing formulae for cement and cinder blocks supplied FREE. Get full details, no obligation!

EXTRA!

Amazing illustrated book gives floor plans for 6 sensational concrete block bungalows. Tells how to lay blocks, lay out building lines, mix concrete, build steps, porch and concrete floors all at great savings. Written by experts. Can save many times the cost of the machine! Get it now! No strings attached.

**"GENERAL"
BLOCK
MACHINE**

Thousands
Now In Use The
World Over!
Only \$218 less motor f.o.b.
plant. Ship. wt. 400 lbs.

PAY AS YOU EARN!
small down payment

**MONTHLY
PAYMENTS 28³³**
as low as

Write Now for FREE Details

SEND \$1 — Refunded
if you buy machine!

GENERAL ENGINES COMPANY

Dept. S-33, 307 HUNTER STREET, GLOUCESTER, N. J.

For The Smoothest, Most Perfect Finishes USE DREMEL **STRAIGHT-LINE ACTION** SANDERS

Only Dremel Offers All These Features:

WORLD'S FINEST FINISHING SANDERS—Patented Straight-Line Action sands with the grain of the wood—eliminates cross grain scratches and orbital swirls.

MORE SANDING SURFACE PER DOLLAR means more work done. Faster action (14,400 sanding strokes per min.); more than *three times* as fast as other type sanders!

POWERFUL, high-speed, lifetime reciprocating motor (110 V. 60 cycle A.C.).

EASY, ONE-HAND OPERATION less tiring on vertical and overhead operations. Sands into corners—other tight places.

TROUBLE-FREE USE assured. Only two moving parts; never needs oiling. No armatures, brushes, gears or bearings to wear out and replace.

FREE SANDING GUIDE

A handy, 16-page "How-to-do-it" booklet containing helpful hints on sanding and refinishing procedures packed **FREE** with each Dremel Sander. Extra copies, 25c.

MAKE THIS SIMPLE TEST!

Sand a piece of wood, by hand, using the four different sander motions illustrated below. Note how the slightest cross-grain action produces scratches and swirls . . . how sanding **with-the-grain** leaves a scratch-free, satin finish. This test proves conclusively why professional craftsmen **always** sand with the grain of the wood . . . never cross grain. **YOU BE THE JUDGE!** If you are not 100% convinced that Dremel straight-line action is the finest, most effective sanding method known, we sincerely don't want you to buy.



A "must" for sanding dry-wall joints.



Fast—cuts refinishing time in half.



Sands right into tight corners.



Prepares furniture for repainting.



MODEL 2000

Heavy-duty model; 21 sq. in. (3 1/8"x7") sanding base. Price includes sturdy steel storage case, 25 asst'd. abrasives, 1 polishing pad. **\$24.50**

MODEL "A"

Hobby and household model sander, polisher, massager (above, right); 12 sq. in. (2 3/8"x5 3/8") sanding base. Price includes 6 abrasives; 1 polishing pad, 1 massage pad. **\$14.85**



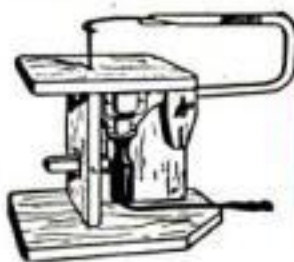
AMAZING FOOT-A-MINUTE
(7,200 Strokes Per Min.)
CUTTING SPEED!

ONLY \$5.85

WITH 3 SAW BLADES

FREE PROJECT PLANS

FREE PLANS! Make your own Table. Complete plans and six project patterns included, **FREE**.



A Rugged Tool for Home and Shop DREMEL Electric MOTO-SAW

Here is a genuine craftsman's tool with dozens of household and workshop uses. It is perfect for all sorts of coping and jig saw work making window valances, knickknacks, hobby projects, etc. High-speed, reciprocating-type motor easily cuts asphalt and rubber tile, also masonite and formica—wood up to 3/4". Perfectly safe for children—so easy to handle that women love to use it. Has only two moving parts, never needs oiling. A high quality tool used by craftsmen, tile layers, and carpenters.



"A TOOL THE WHOLE FAMILY CAN ENJOY"



Cuts scrolls like magic!

SEE YOUR LOCAL DEALER: Dremel Tools are sold at better dealers everywhere. If your dealer can't supply, order direct on a five-day trial, money-back guarantee. Remit in full, and we will ship postpaid. Or, send only \$2.00 now, pay postman balance plus postage and C.O.D. fee.

DREMEL MFG. CO. Dept. 123-C RACINE, WISCONSIN

\$1,000.00 CASH

SYNCRO SANDER CONTEST

IT'S FUN! IT'S EASY!

NOTHING
TO BUY!

WIN
One of
These
43
CASH
PRIZES

1st Prize
\$500
2nd Prize
\$200
3rd Prize
\$100
40 Prizes
\$5 Each!

Contest
STARTS
MARCH 1
ENDS
MAY 31, 1953

JUDGES
WALT DURBAHN
Master Craftsman,
TV Star
RUSSALL JOHNS
Publisher
HARRY J. HOBBS
Publisher

SYNCRO
ELECTRIC
SANDERS

SYNCRO CORPORATION
CONTEST DEPT. G-33
OXFORD, MICHIGAN, U. S. A.

Send Contest Folder **FREE** and postpaid.

Name.....

St. & No.

City.....

Zone.....State.....

HOW TO ENTER:

1. Don't buy anything—just find correct Missing Words for Jingle:

SYNCRO SANDERS HAVE A LOT OF FEATURES OTHERS HAVEN'T GOT; S____R, L____R, _____FREE PLUS AN HONEST _____EE!

"Missing Words" are below sander picture in the type following "Syncro Features." Look for them now!

2. Finish Sentence "I LIKE SYNCRO SANDER BECAUSE" in 15 additional words or less.

3. Give hardware store name.

ENTER NOW! Write completed Jingle, Sentence, store name, your name-address on paper—mail! or send Coupon for FREE CONTEST FOLDER—or get at hardware store! Have fun—and win!



No. 504
\$19.95
At
Dealers



SYNCRO FEATURES:

Sands 10 times faster than hand-sanding. **SMOOTHER** finish, too! Proven best for vertical and overhead use because it is so powerful, so much **LIGHTER**. Syncro is the only electric sander with Double-Arc motion which cleans as it sands. Works so easily you "finger-guide-it!" Save money and **TROUBLE** doing your own refinishing at home with Syncro. Remember—it is the only sander giving you a **GUARANTEE** which says: *Syncro Power Units guaranteed against burn-out all during your ownership or replaced free! Try SYNCRO at your hardware!*

\$1,000.00
Contest
Folder
FREE
AT HARDWARE
OR
SEND COUPON

Warning to Space Travelers: Beware of These Odd Hazards

WILL "space sickness," a malady new to medicine, imperil future voyagers to other planets? A warning of that possibility was given at a recent New York symposium on space travel by Dr. Heinz Haber of the Air Force School of Aviation Medicine.

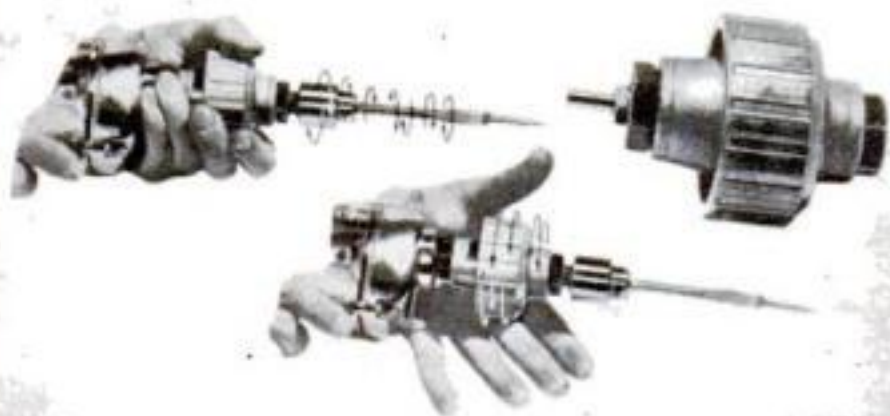
Within a space ship, the normal pull of the earth's gravity will vanish, and occupants will become weightless. How well and for how long the body can adapt itself to this strange situation—impossible to duplicate on earth—is unknown.

A form of seasickness, Dr. Haber points out, might result from the conflict of unaccustomed physical sensations with the normal evidence of human senses. Whether or not a serious ailment in itself, this "space sickness" could cause grave danger if it incapacitated the crew of a space ship and left controls untended at a critical moment in a flight.

In case prolonged weightlessness does harm the body, designers of space ships may still be able to overcome the difficulty. A rotating cabin could substitute centrifugal force for natural gravity. This "artificial-gravity" idea was recently incorporated in a proposed design for a revolving, doughnut-shaped inhabited "space platform" to circle the earth as a satellite.

Bombardment of a space ship by tiny meteors, which could puncture the skin and drain the cabin of life-sustaining air, is another possible hazard of interplanetary flight.

BABCO 5-TO-1 SPEED REDUCER FOR 1/4" ELEC. DRILLS



Convert your drill to electric screwdriver—drill holes to 1 1/4" in wood, to 1/2" in masonry. Planetary gear system gives tremendous torque increase. Adapters furnished for 1/4" or 1/2" chucks. Instant starting or stopping with hand clutch control. To start, simply grip reducer, release to stop. At hardware stores and tool dealers, or \$9.95 ppd. from Babcock Mfg. Co., 6259 Claremont Ave., Oakland 18, California.



14-ft. DeLuxe Runabout Kit

SAVE ½ or more! Buy a new CHRIS-CRAFT KIT

for as little as **\$49** full price!

Many more new kit models! Send for **FREE** catalog today!



8-ft. Pram Kit Boat—\$49



10-ft. Pram Kit Boat—\$96



14-ft. Sportsman Kit Boat—\$143



14-ft. DeLuxe Runabout Kit Boat—\$187

EASY to assemble—fun, too! Precut Philippine Mahogany parts, Fir marine-plywood panels; brass fastenings; compound; decals; illustrated instructions. Also, new *lifetime* Chris-Craft Boat Trailers, priced from \$99 (tax extra). Mail coupon today! (Kit prices quoted f.o.b. factory, subject to change without notice.)

Chris-Craft Corporation, Algonac, Mich.



17-ft. Kit Speedboat—\$490



18-ft. Outboard Express Cruiser Kit Boat—\$595



Model CC-650 Boat Trailer—\$129 (tax extra)
Complete line—300- to 2200-lb. capacities

Chris-Craft Corporation, Algonac, Mich. FREE!

Send **FREE** Chris-Craft Kit Catalog to:

Name _____

Address _____

City _____ State _____

It's a cinch to Install!



A few dollars, your own tools, a couple of hours will give your home all the benefits of healthful, protective *automatically humidified air*! Yes, in your *present* warm-air furnace—coal, gas or oil! No plumbing necessary!

Exclusive Combustioneer features... Twin-Valves of stainless steel, can't rust, corrode or leak . . . "Noverflow", prevents water dripping *inside* furnace . . . big "Thirsty-Thick" ceramic plates for larger water evaporation area . . . Selector Dial for positive humidity control . . . Water pan of heavy stainless steel.

Low Prices! Model CH-300, 4 plates for 13" to 20" plenum (width or length), \$20. CH-200, 6 plates for 22" to 25" plenum, \$22, F.O.B. Springfield, Ohio. Prices include 10 feet of tubing, saddle valve and adjustable hinge face plate. Immediate shipment. Check or Money Order. **Combustioneer DIV, THE STEEL PRODUCTS ENGINEERING CO., 1276 W. COLUMBIA STREET, SPRINGFIELD, OHIO**

NEW Transvener



PLASTIC VENEER

★
Makes any smooth surface look like **WOOD, MARBLE, or LEATHER!**

- ✓ Refinish Old Furniture Like New!
- ✓ Finish Unfinished Furniture!

Miraculous new veneer applies as easily as a decal. Choice of world's richest wood grains, marbles, leathers. Permanently covers any smooth surface—wood, metal, glass. Dries fast. Inexpensive.

FREE SAMPLE! Write today for free sample and folder in full color showing **TRANSVENEER** selections.

Transvener SALES CO.

125 W. Hubbard St.
Dept. TV-33, Chicago 10, Ill.

MARCH 1953 275

How to Watch Roller Derby

[Continued from page 177]

costly, accounts for today's resilient and perfectly banked oval. It is a far cry from the first track, erected in the Chicago Coliseum in 1935.

"It was a lulu," Seltzer recalls. "Skaters raced for speed along the straightaway, hit the shallow banks and took off for points in the bleachers. We had to do something about that baby, but fast."

Banking Track Cuts Accidents

Seltzer called for timbers, screw jacks and a bucket of pumice. The offending corners were jacked up until skaters, traveling at top speed and marking their courses on the powdered pumice, passed no nearer the rail than one foot.

It was also found that ordinary rink skates, which have a side-tilt of only 10 degrees, wouldn't work on banks sloped to 23 degrees. Players seemed to be going around the oval on a 13-degree slant. So Seltzer and his brother Oscar promptly

bought a skate company and fashioned a Derby model with 45-degree tilt.

Like the Chicago packer who learned to market everything in a pig but the squeal, Seltzer has exploited every aspect of Roller Derby except the roar of flying wheels. Filmed games are being sold to TV stations in 24 cities. The skate business is swelling his personal Fort Knox, and a biweekly fan newspaper, *Roller Derby News*, has 50,000 readers. **END**

Taking the Long View

Two cars met in a head-on collision. Both drivers got out and began to apologize.

"I'm so sorry," said the woman. "It was all my fault."

"Not at all, madam," the man responded with gallantry. "I was to blame myself."

"But I was on your side of the road."

"That may be true, madam, but I am responsible for the accident. I saw you coming three blocks away and had plenty of time to turn down a side street."—*Pure Oil News*.

New SHOPMASTER PRESENTS THE SENSATIONAL Universal PowerTool

Here's a complete workshop for the hobbyist or wood-working craftsman—all in one tool. Easy to convert... simple to operate, it's precision-built to finest professional quality. All moving parts glide on ball bearings. Tools lock in any position. Complete unit includes heavy bench with tool compartments, 8" radial arm saw, 21" radial arm drill press with keyed safety type chuck, sanders, V-belts and pulley.

LESS MOTOR **\$249⁹⁵**

It's a circle saw, drill press, sander, router, shaper, lathe

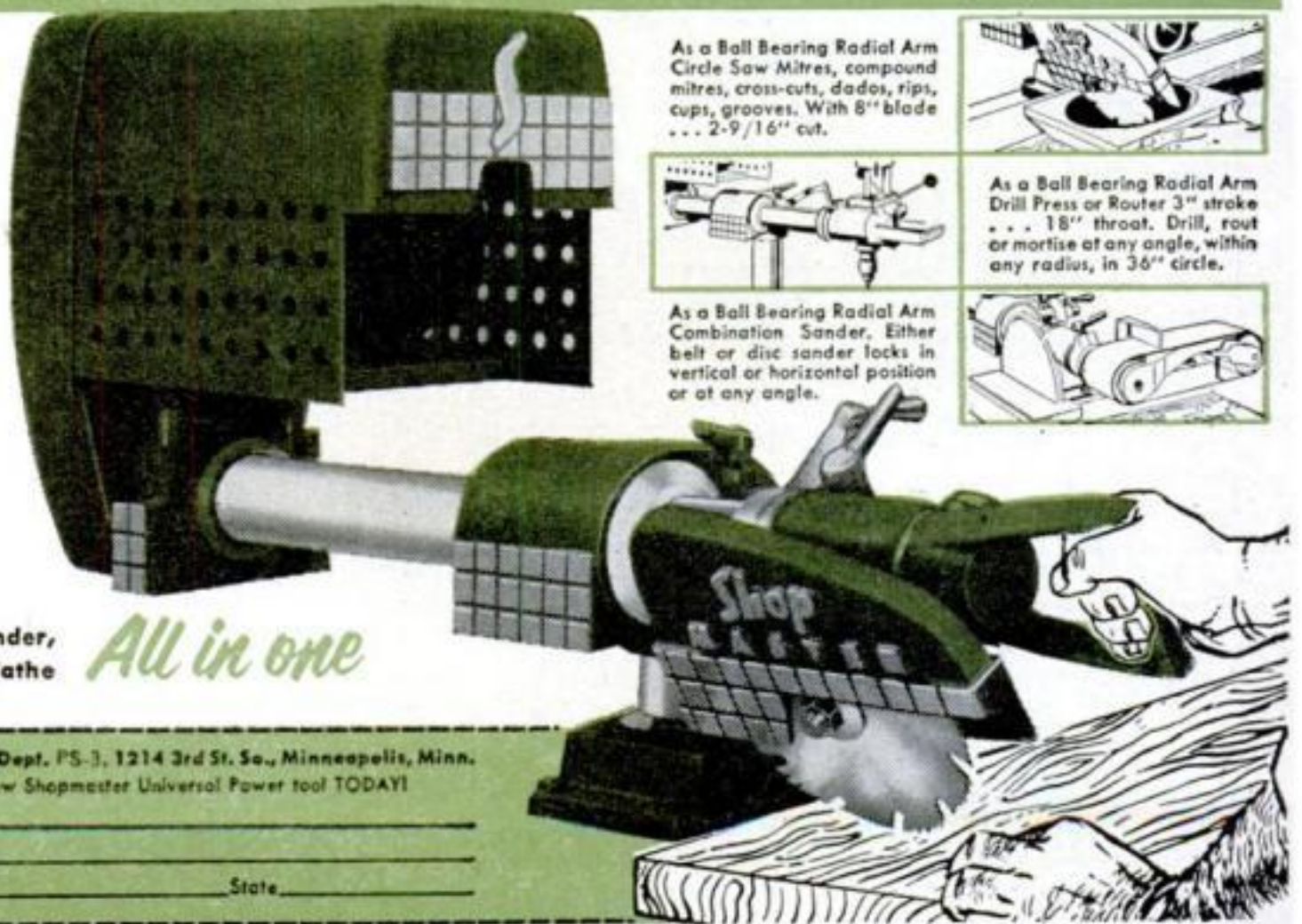
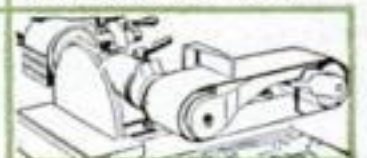
All in one

As a Ball Bearing Radial Arm Circle Saw Mitres, compound mitres, cross-cuts, dados, rips, cups, grooves. With 8" blade ... 2-9/16" cut.



As a Ball Bearing Radial Arm Drill Press or Router 3" stroke ... 18" throat. Drill, rout or mortise at any angle, within any radius, in 36" circle.

As a Ball Bearing Radial Arm Combination Sander. Either belt or disc sander locks in vertical or horizontal position or at any angle.



SHOPMASTER, INC., Dept. PS-3, 1214 3rd St. So., Minneapolis, Minn.
Send information on new Shopmaster Universal Power tool TODAY!

Name _____
Address _____
City _____ State _____

**WAR SURPLUS
and NEW
MANUFACTURE**

GENERATING PLANTS

**AVAILABLE for
IMMEDIATE
DELIVERY**

SHOP BY MAIL AND SAVE • Large Stock — Many Sizes from 350 Watts to 25 KVA

ITEM
#301



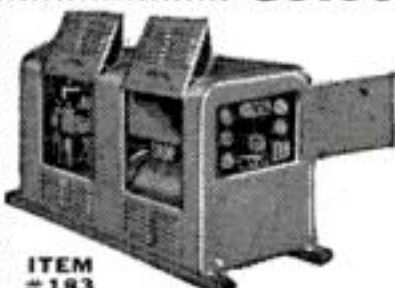
TINY TIME BATTERY CHARGER

Item #301 Model 125 to charge 6 and 12 volt batteries—12 volts—300 Watts; Heavy Duty Generator; Push button self-starter; Sturdy single cylinder air cooled Continental 1.3 H.P. engine; 2 qt. gasoline tank in base; Ammeter; Generator cut-out; Concealed coil, etc.; Speed and charging rate control; Attractive orange finish; Weight 93 lbs.; Length 15 1/2", width 11 1/4", Height 14 3/4".

89.00

F.O.B. Chicago.....
Item #183 —
3000 to 4000
WATT GENERA-

TOR SET—FEATURES—Power for your home or business. Simply connect to power panel or house circuit. • Constant voltage regardless of load. • Push button start or stop. • Easily made full automatic start or stop. **SPECIFICATIONS**—Size 19"x30"x48". Steel skids, weatherproof housing, requires no building. Wt. 725 lbs. • Hercules 4-cyl. 10 HP gasoline engine. Load governor. Oil filter. Quiet muffler, 6-volt starter, generator • Hobart 115 volt, 60 cycle, 3000 to 4000-watt generator. Furnishes either single or three-phase power, 2 or 3 wire. • Panel contains oil gauge, volt-



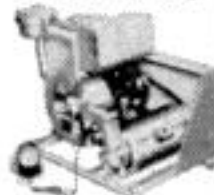
ITEM
#183

meter, ammeter, circuit breaker, voltage regulator, start button. Today's cost over \$1200.00. **SALE PRICE, F.O.B. Chicago 465.00**

NEW GROBAN MANUFACTURE

Item #2510, 2500 watts, 115 volts, 60 cycles, single phase, A.C. electric generating plant, powered by dependable 6.5 H.P. Wisconsin engine—Two pole ball bearing belt driven high efficiency generator with heavy duty windings for high torque motor starting loads. Rated 3000 watts for intermittent service. Light weight portable rugged unit, easily transported to job site. Consumes 3 quarts of gas per hour at rated load. Dimensions: 24"x20"x24", ship. wt. 220 lbs. Complete with fused outlet box and voltmeter. F.O.B. Chicago **349.00**

MODEL 251



Item #2510

Item #182, Onan Power Unit PE-95C is an electric generating set consisting of a 4-cylinder, 4-cycle, L-head, liquid-cooled, electric starting gasoline engine, directly connected to an AC generator of the revolving field type. Uses Approx. 1.1 gal. of gas per hr. at rated load—generator is rated at 5 KW, 60 cycles, single phase, 115V, 52 Amps. F.O.B. Chicago **795.00**

Item #82A, same model as above, with dual voltage 110/220 V, F.O.B. Chicago **845.00**

Item #300—Model C1B—3 KW—110 Volts D.C. This mighty mite develops 3 KW—28.5 amps, D.C. Standard Delco generator direct coupled to a Model ZEP Briggs and Stratton 1 cylinder, 5-7 HP, air cooled, rope starting gas engine. Instruments include voltage control rheostat & voltmeter. Ideal for Power Tools. Wt. 275 lbs. F.O.B. Chicago **295.00**

ITEM
#350



LOGAN AIR CYLINDER

Item #350 — Double acting pneumatic cylinder, 6" bore, 6" stroke, 1 1/2" shaft. Adjustable cushions at both ends. Flange mounting at shaft end. Overall length closed 18". Ideal for use in 125 PSI systems. Shipping weight 40 lbs. F.O.B. Chicago.... **39.50**

LOGAN 4-Way, Foot Operated AIR VALVE. Item #59, Model 6520—Ideal for operating air vices, presses, air machinery, and other double acting pneumatic devices. Heavy cast construction. Standard 1/2" pipe thread ports. Overall dimensions 8 1/2" x 5 3/4" x 7 1/2". Gov't. Acquisition cost \$42.00. Shipping weight 28 lbs. An outstanding buy, F.O.B. Chicago.... **15.00**



ITEM #59

HEAVY DUTY HYDRAULIC and AIR EQUIPMENT

Large supply of new labor-saving, economical hydraulic equipment in many types and sizes. Use these positive, highly efficient smooth pressure hydraulics on presses, arbors, lifts, loaders, power control, positioning, brakes, plastic dies, auto frame alignment, etc.

ALL ITEMS UNCONDITIONALLY GUARANTEED

ITEM #42—Double action hydraulic cylinder, 4" bore, 18" stroke. Rated lift capacity with 1000 PSI line pressure is 12,500 lbs. Ship wt. 30 lbs. F.O.B. Chicago. An Excellent Buy for.... **32.50**

Item #16C—Double acting hydraulic cylinder, 1 1/2" bore, 26" stroke. Will lift 1760 lbs. with 1000 PSI line pressure. Weight 8 lbs. A \$55.00 value. Now only..... Postpaid **16.95**

Item #1036—Double acting hydraulic cylinder, 3" bore, 36" stroke, 1/2" pipe thread ports, 1 1/4" solid steel shaft. Overall length closed 49", clevis mounting at base and shaft. FEATURES. Cup & Chevron Packing. All Welded Construction. Precision Ground and Honed Construction. Will lift 7000 lbs. using 1000 P.S.I. line pressure. Weight (net) 57 1/2 lbs. F.O.B. Chicago..... **50.00**

Item #150—Double acting hydraulic cylinder, 2 3/8" bore, 12" stroke. Use either foot or clevis mounting. Will lift 4400 lbs. using 1000 P.S.I. Overall length 19 1/2". Shipping weight 8 lbs. Postpaid **18.00**

Per Min. At 1500 R.P.M.—Delivers—1000 P.S.I. Using 6 H.P.—Reversible Rotation—3/4" Pipe Thread Inlet and Outlet Ports—1/4" Drain Port—3/4" shaft with keyway and flat for either direct or pulley drive Dimensions—5 3/4" high, 7 1/4" long, 5 1/8" wide. Shipping weight 18 lbs. F.O.B. Chicago..... **45.50**

Item #126—Four-way, open center control valve with built in adjustable relief valve. Factory set at 1000 P.S.I., spring loaded neutral position, for use with one double acting cylinder. In neutral position cylinder is locked and pump unloaded. Fully balanced plunger type, smooth, positive easy operation. Can be used as single unit or mounted in series of any combinations desired. Has 3/4" pipe thread inlet and outlet, 1/2" pipe thread cylinder ports. Newly manufactured to our specifications. Shipping weight 2 1/2 lbs. An outstanding buy! F.O.B. Chicago..... **21.50**



Item #55
MULTI PURPOSE
HYDRAULIC
PUMP OR
MOTOR

Silent, High Efficiency, Helical Gear Type Ball Bearing, Hydraulic Pump or Motor. Rated 8 Gal. Per Min.



Item #126

ARC WELDER

**NEW MODEL 353—
DUAL RANGE**

for Stationary or Portable Use
Heavy Duty Range
To 250 AMPS.

New 'Magic Terminal' For Low Current 30 to 100 Amps.



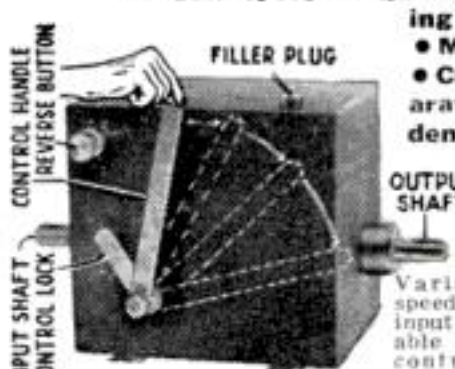
Welds Anything From Auto Fenders To Tractor Frames

IDEAL FOR • FARM • GARAGE • FACTORY • WORKSHOP. These precision engineered D. C. Arc Welders contain the highest quality War Surplus aircraft components built to exacting government specifications. They are light in weight, have oversized lifetime grease-sealed ball bearings, air cooled commutator, dial type rheostat for easy pin-point control, a high-low rheostat switch, reactor coil for even arc and the new 'MAGIC TERMINAL' low current welding range for welding lighter materials. Designed for many years of trouble-free service. Run welder from drive pulley or power take off of a tractor or Jeep. 7 1/2 HP electric motor or 10 HP gas engine at 2500 R.P.M. Uses two V belts or flat belt. Continuous output rating 200 amps. Intermittent welding rating 250 amps, 30 volts. This sensational price includes double V or flat belt pulley and complete operating instructions. Ship. **119.50** F.O.B. Chicago.....
Item #65. Now only..

HYDRAULIC SPEED REDUCER

ITEM #115 WITH FINGERTIP CONTROL

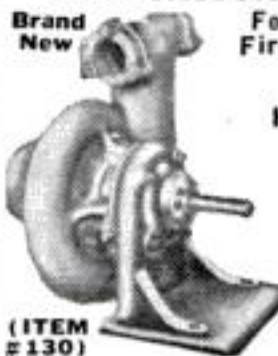
USE FOR: • Reamer Drives • Midget Cars • Feed Mills • Canning Machines • Conveyors • Lathes • Milling Machines • MotorBoats • Cream Separators • Garden Tractors • Pumps



Variable output speeds from 0 to input speed available by moving control handle. Locking handle maintains setting. Use input power of 1/4 to 1 1/2 H.P. This Westinghouse-Oil Gear Unit consists of a variable displacement hydraulic pump feeding a fixed displacement hydraulic motor. Adjustable relief valves set at factory for 100 inch pounds of torque may be reset up to 180 inch pounds. Independent reverse control allows full output power and speed selection in either direction of rotation. Shafts measure 3/8" diam., include keyway. Input rotation is counter-clockwise facing shaft. Recommended input speed not to exceed 750 R.P.M. Overall dimensions, 7 1/2"x7 1/2"x11 1/2". Gov't acquisition cost, \$428.00. Ship. wt. 31 lbs. Complete with 2 qts. of oil and full instructions. F.O.B. Chicago **54.50**

CENTRIFUGAL PUMP

**General Motors — Allison
200 GALLONS PER MINUTE**



(ITEM #130)

For Draining Basements
Fire Fighting • Irrigation
Fuel Transfer
Swimming Pools
Home Water Systems
Dewatering

Converted for high volume commercial, home, and industrial use. Standard 2 1/2" pipe thread inlet, twin 1 1/4" pipe thread outlets. Ball bearing supported 3/4" shaft. Easy priming. Rotation, counter-clockwise facing shaft. Gov't. acq. cost \$145.00. Complete with full instructions. Ship. wt. 35 lbs. F.O.B. Chicago..... **39.50**

TYPICAL PERFORMANCE DATA

Suction Lift	Head Pressure	Gal. Per Min.	H.P.	R.P.M.
10'	75'	260	6.0	3500
10'	65'	200	5.2	3500
10'	80'	40	1.5	2500
10'	50'	140	5.0	3500
10'	30'	100	3.0	2500

FREE 1953 CATALOG. 48 Pages, chuck-full of unsurpassed war Surplus Equipment Bargains for farm, home, factory and workshop. Every item is unconditionally guaranteed. You save on everything! Write today.

ORDER DIRECT FROM AD — SEND PAYMENT OR PURCHASE ORDER TODAY — SATISFACTION GUARANTEED

GROBAN SUPPLY CO. 1139 SO. WABASH AVE., CHICAGO 5, ILL. DEPT. PS-3

MARCH 1953 277

It's Easier...
to get in the **BIG MONEY**
arc welding

- if you own
a **HOBART**
welder



200 amp. "Bantam
Champ" Elec. Drive



Portable Gas Drive
DC Welder



Portable
Elec. Drive
DC Welder

EVERYONE NEEDS ARC WELDING

Farmers, contractors, factories, builders, homeowners, etc.—all need dependable welding work. That's why welding is today's fastest growing, biggest paying trade—a trade that offers unlimited opportunities to men of vision.

CASH IN NOW!

Set up your own welding shop now and start earning the big money. All you need is one Hobart Welder. It goes anywhere—handles any job—makes learning easy. Standard models offer 1,000 combinations of heat—and remote control—and are truly "simplified." Complete line of gas and electric drive models to choose from. Check coupon for details.

Welding Books it will pay you to own.

TEXT AND LESSONS BOOK. Covers every phase of welding. 544 pages, over 600 illustrations. . . . \$3.00

LESSONS BOOK. Complete operator's training course. 200 pages, fully illustrated \$1.00

PRACTICAL DESIGN. 100's of weld ideas in design form. 3 vols., 100 designs each. 1 vol. \$3.50; set of 3 vols., \$10.00.



Let
HOBART
train
you!

HOBART TRADE SCHOOL
Learn welding in modern, non-profit school. Complete or partial courses. Best equipment, thorough training, experienced instructors. Check coupon.

Check Coupon for **FREE** Welding Booklet!

Hobart Brothers Co., Box P-33, Troy, Ohio

"one of the world's largest builders of arc welders"

HOBART BROTHERS CO., BOX P-33, TROY, OHIO

Send complete details on items checked.

☐ Electric Drive Welders ☐ Gas Drive Welders ☐ Hobart Trade School. Send books checked: ☐ Text and Lessons

☐ Lessons, Practical Designs: ☐ Vol. 1

☐ Vol. 2 ☐ Vol. 3 ☐ Set of 3 vols.

☐ Cash enclosed. ☐ C.O.D.

free



Welder's Vest
Pocket Guide

Name _____

Address _____

City _____ State _____

KEUFFEL & ESSER "WYTEFACE" Steel Tapes At Less Than Half Their Original Cost

FEATURES

• **BLACK ON WHITE MARKINGS.** EASY TO READ.

• **MARKINGS IN FEET, INCHES AND 1/8ths.** SHOWS THE FT. NUMBER AT EVERY INCH IN RED.

• **HARD-WEARING RED LEATHER CASE WITH NICKEL-PLATED MOUNTINGS.**

BRAND NEW Fully Guaranteed
This tape has been preferred for years in the industry. A permanent & durable measure built to last a lifetime.

50 FT. (Formerly \$7.50) **3.95** Parcel Post 25c

100 FT. (Formerly \$12.60) **5.50** Parcel Post 25c

No C.O.D.'s, Send Check or Money Order

JOB LOT TRADING 53 Vesey St. NYC

ONE-MAN SAWMILL LOW \$50.00 DOWN



Take **BELSAW** Portable Sawmill right to the trees—turn out valuable lumber for local yards—do "custom sawing" for neighbors. **BELSAW** lasts a lifetime. No crew needed. Power with old auto engine. Beginners get excellent results. Send postcard for **FREE BOOK**, "How To Make Lumber."

BELSAW MACHINERY CO.
8464 Field Bldg. Kansas City 11, Mo.



BRONZE FOUNDRY

Schools and Home Workshops
Make your own castings of aluminum, copper, bronze, silver. Foundry sets are available in three sizes including 2400 Deg. F. blast Furnaces, \$22.50; \$29.50; and \$42.00. f.o.b. Kansas City. Free Circular.

KANSAS CITY SPECIALTIES CO. P. O. Box 6022, Dept. S-3 KANSAS CITY, MO.

Advanced Design Low Prices

A practical, soundly engineered line of tractors for gardens, small farms, suburban and country homes. New advanced features. One and Two Wheel models.

WALK OR RIDE

Wide Range of Attachments

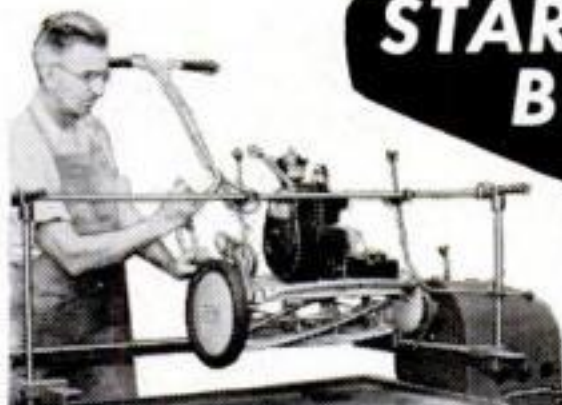
Write Today **FREE CATALOG** Easy Terms
AMERICAN FARM MACHINERY COMPANY

1072 33rd Avenue S. E. Minneapolis, Minnesota

VIKING Garden Tractors and Power Mowers



START A BUSINESS this Quick Way



"I have taken in 100 mowers in 5 weeks since I got my Foley", says George C. Wise.

FOLEY LAWN MOWER SHARPENER

Start in spare time and make a quick **CASH PROFIT**. The Foley handles up to 3 or 4 mowers per hour—prices run \$1.50 to \$3.00 for hand mowers, \$5.00 to \$8.00 for power mowers. You make 99% profit! **FREE**—Valuable 33-P. Book shows how to sharpen all power mowers. Foley prices are low—easy payments available. **FREE PLAN** tells how to start. Write today—no salesman will call.

FOLEY MFG. CO., 308-3 Foley Bldg., Mpls. 18, Minn.

SURPLUS TO SAVE YOU UP TO 85% TOOL BARGAINS

SAVE BY MAIL! ORDER TODAY

HIGH SPEED STRAIGHT SHANK DRILLS

SET 30 selected H. S. Straight Shank Drills from 1/8" to 1/4", lengths up to 7". \$15 value, only **\$2.98**

SET 100 HIGH SPEED DRILLS: 1/4" down. 30 new std. H. S. Drills — 70 slightly used sharp drills, lengths up to 7". \$30 value. PPD. Only **\$7.98**

SET 12 Different size H. S. straight shank Drills. 1/4" to 1/2", lengths up to 7". Only **\$3.98**

HIGH SPEED DRILLS

1/4" TO 17/32" WITH 1/4" SHANKS!

SET 10 different size H. S. Drills. 1/4" to 17/32", all with 1/4" shanks. PPD. **\$4.95**
Set 36L will fit any 1/4" drill.

HIGH SPEED DRILLS

1/2" to 1-3/16" WITH 1/2" SHANKS! 5 Drills for less than one new drill.

SET 5 different size H. S. Drills 1/2" to 1-3/16" **\$7.95**

SET 10 different size H. S. Drills 1/2" to 1-3/16" **\$14.50**
These new and used H. S. precision Drills with 1/2" shanks can be used in a 1/2" elec. drill or a 1/2" capacity lathe or drill press.

HIGH SPEED STRAIGHT SHANK CHUCKING REAMERS

SET 20 Different Size High Speed Straight Shank Chucking Reamers up to 1/2". New and used. Priced at only **\$7.95**

SET 15 Different Size High Speed Straight Shank Chucking Reamers from 1/4" to 1". New and used. Priced at only **\$7.95**

NEW MOUNTED STONES

SET Mixture of 27L Stones with 1/4" shanks. PPD. **\$2.95**

HIGH SPEED MORSE TAPER SHANK DRILLS

SET 15 Different Size High Speed Morse Taper Shank Drills up to 9/16" with No. 1 and 2 tapers. New and used. \$50 value. Priced at only **\$6.49**

SET 20 Different Size High Speed Morse Taper Shank Drills from 1/4" to 1". New and used. \$70 value. Priced at only **\$12.95**

SET 10 Different Size High Speed Morse Taper Shank Drills from 1/4" to 1 1/4". New and used. \$50 value. Priced at only **\$9.95**

HIGH SPEED WOODRUFF KEY SEAT CUTTER

SET 5 different size cutters. Can be used as mounted milling cutter or circular saw. All with 3/8" and 1/2" shanks, widths up to 1/4", dia. up to 1". New and used. Ppd. **\$3.95**

BARGAIN TOOL & SHOP MIXES—PPD.

- 30 GRINDING WHEELS 1/4" arbor, 4" diam. max. With mandrel **\$3.29**
- 300 SPRINGS all types and sizes **\$1.79**
- SURPRISE MIX: Over 50 pcs. for your 1/4" elec. drill including rotary files, drills, bits, reamers, grinding wheels and arbors for our customers who like pleasant surprises. Your money back if you aren't satisfied **\$2.98**
- BEARING MIX: About 40 needle, ball and roller bearings; new and used. Up to 2 1/2" dia. approx. 5 lbs. Outstanding buy at **\$2.95**
- 7 H. S. Rotary Files. 1/4" shanks **\$4.49**
- 8 H. S. Taps. Std. & Pipe up to 3/8". only **\$2.95**

AUTO TEST VACUUM GAUGE: 4 1/2" Dial, 30"-0. You can pay up to \$14.00 for this gauge. PPD., only **\$3.25**

24-VOLT TRANSFORMER: 110-volt A. C. to 24-volt, 3 amps. Just the thing for small 24-volt motors **\$1.95**

YOUR MONEY BACK on receipt of merchandise if you are not satisfied. All mdse. mixture of new and reconditioned unless specified new. All orders (except those specified F.O.B. Tulsa) are shipped Post Paid saving you up to 25% on total delivered cost.

T & T TOOL 221 W. SECOND TULSA, OKLA.



1/20 H. P., 110-VOLT MOTOR

60 cycle A. C. 1550 RPM. bronze bush bearing. 5/16" shaft. Wt. 4 lbs. Used, guaranteed serviceable. Only **\$3.50**



NEW VICKERS MF9, 6 H. P.

Hydraulic Motor. Unit is compact, powerful. Displaces .507 cu. in. per revolution, 6 gal. per min. at 3000 RPM, 1500 PSI. Positive displacement. Angle type. Rated at 6 H.P. Rotates either direction. Unit can also be used as a pump. Here is the finest hydraulic motor available at a fraction of its new cost of over \$200.

Our price only **\$14.95**

NEW VICKERS HYDRAULIC MOTOR: 4 1/2 H.P. serial no. MF1071130BCF2. cu. in. displacement per rev. .378, 3600 RPM 1000 PSI. (unit similar to above only a smaller displacement and H.P.) only **\$16.50**

6 SLITTING SAWS WITH MANDREL

SET 6 Different Size High Speed Slitting Saws, 5 pcs. 23/4" dia. x 1" arbor, plus 1 pc. 5" dia. x 1/2" arbor. Thickness from .040 to .071. Cuts wood, aluminum, brass, steel, etc. PLUS SPECIAL MANDREL which enables use of saws in 1/4" or 1/2" elec. drill. \$25 value. PPD. Only **\$4.95**



7 selected, sharp H. S. Slitting Saws as above to use on your own mandrel or milling machine. New and used. PPD. **\$4.95**

A bargain at **\$4.95**

NEW

HIGH SPEED

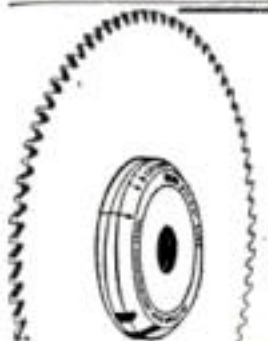
COMBINATION DRILL AND COUNTERSINKS

SET 8 selected sizes from A1 to F2 (3/64" drill x 1/8" body to 3/16" drill x 7/16" body) 60° angle of countersink. New cost on these countersinks 75c to \$2.50 ea. Priced to you Ppd. at only **\$3.98**



.01" ACCURACY with MAGNA DADO!

Geared hub. Sets in 5 seconds with Allen wrench. Cuts any groove 5/32"-7/8" wide. 2" max. depth. 12-gauge tempered steel blade; 8" dia. Available at SHOPSMITH dealers. Fits most saws. \$12.95.



ITALIAN ACCORDIONS AT LOWEST WHOLESALE PRICES

"PAY AS YOU PLAY"

Small Down Payment As Little As

\$10 per month

DIRECT from Importer to You!

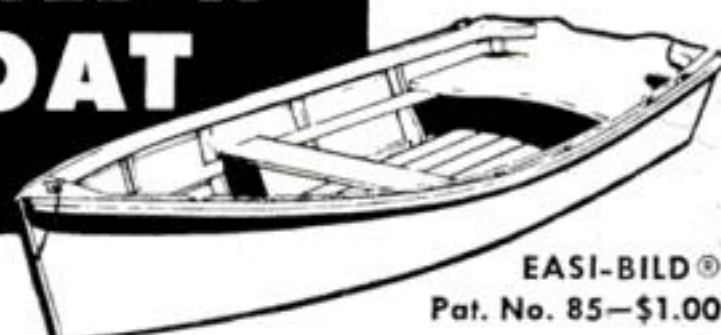
SATISFACTION GUARANTEED, or your money back! NOW you can save up to 50% by direct purchase from America's leading distributor of famous genuine ITALIAN ACCORDIONS.

Send for FREE Illustrated Catalog!

ACCORDION MANUFACTURERS & WHOLESALE OUTLET

2003 West Chicago Ave. Dept. P-83, Chicago 22, Ill.

BUILD A BOAT



EASI-BILD® Pat. No. 85—\$1.00

EASY! Build this sturdy 11 1/2 ft. rowboat with an Easi-Bild full-size pattern. Finishing becomes simple with amazing Plastic Wood, because it handles like putty... hardens into wood! Insures a smooth, sturdy, water-tight job throughout!



Get pattern #85 at hardware or boat-building stores. Or send \$1.00 to: Plastic Wood, Box 215, Pleasantville, N. Y.

P.S. Pulleys, hinges, locks and latches work better with 3-IN-ONE Oil

send for **FREE CATALOG**



America's Foremost
money-making
MECHANICS' TOOLS

It's easy to own the same "pay-off" tools used and endorsed by America's top-earning mechanics throughout the automotive, aviation and industrial fields! Snap-on tools help you handle every repair job faster, easier, better. And they LAST... pay for themselves over and over again! Start building your own tool set now with basic Snap-on units—add others any time. Genuine Snap-on tools are never sold in stores—direct to users only. Mail coupon for free catalog.

Snap-on Tools
THE HOME OF BETTER MECHANICS

SNAP-ON TOOLS CORPORATION

8060-C 28th Ave., Kenosha, Wisconsin

Send me free catalog of Snap-on tools.

Name _____

Address _____

City _____ Zone _____ State _____

**BUILD YOUR
OWN GARAGE
DOOR...**

SAVE MONEY!

WORK FROM A
PAPER PATTERN
— STEP-BY-STEP
DIRECTIONS



With Easi-Bild® Build It Yourself Pattern No. 86 you can have a garage door with Stanley Swing-Up Hardware — for less than 1/2 present cost! Pattern tells what materials to buy, where and when each is used. No special tools or skill required. Install the Stanley Garage Door Set with hand tools.

You'll be amazed at how easily and economically you can build a professional looking door by following the step-by-step procedure outlined in this pattern. Ask your dealer for Simplified Directions for installing Stanley Garage Door Hardware, and Easi-Bild Pattern — or send coupon below.

*Trade Mark Reg. U. S. Pat. Off — Easi-Bild Pattern Co.

EASI-BILD PATTERN CO., Dept. S-5, Pleasantville, N. Y.

Enclosed is 50c in Coin, Money Order, Check for Single and Double Garage Door Pattern No. 86.

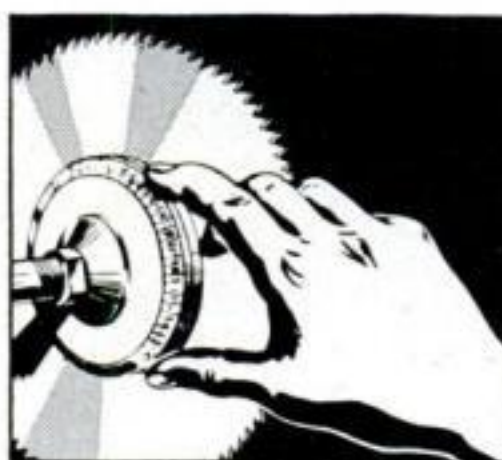
Please send Simplified Directions for installing
☐ Single ☐ Double Garage Door Hardware

Name _____

Address _____

City _____ State _____

**NOW—40 different cuts
with AMAZING, NEW
Warren**



**DADO SAWING
WASHERS**

**ON YOUR
SAW BLADE!
NO Warp...
NO Wobble...
NO Burning!**

ONLY \$4.95 PER SET

4 Washers Mean Perfect Balance

Make clean, smooth parallel grooves at any angle—no chewing, no sanding. Just dial your cut—no trick screws, no vibration, strengthens blade for straight cuts. Warren Washers greatest improvement in 30 years—and most copied—look for the name on the box and washers. It costs no more to get the best—WARREN, IT'S GUARANTEED! At your dealer or order direct. Give arbor size—1/2", 3/4", 5/8", 1"—sent postpaid.

Send for Free Booklet

WARREN DADO SAWING WASHERS CO.

Dept. 43 • Box 98 North End Station
Detroit, Michigan

**MAKE
MONEY
Selling**

ESHELMAN

Power Mowers
Riding Tractors
& Rotary Tillers

RAKES
PLOWS
CULTIVATES
HARROWS
HAULS
SPRAYS
SAWS
DOZER
MOWS
CUTS
ROLLS
TILLS
SNOW PLOW

ESHELMAN

**FOR Better LAWNS
And GARDENS**



6 H.P. Also
WALKING
TRACTORS
LOW AS
\$95

WOMEN CAN OPERATE IT.
Free Catalog.
Write nearest branch:
ESHELMAN CO., Dept. T-20
119 Light St.,
Balto., 2, Md.
333 N. Michigan Ave.,
Chicago 1, Ill.
105 Lake St.,
Reno, Nev.

ELECTRIC SHEAR SHARPENER

Over 85,000 Sold—It Must Be Good



Genuine Carborundum Motor driven wheel ideal for shop or home use. Send remittance with order and shipment will be made at once, prepaid to your door, complete with electrical goods catalogue.

\$9.75
complete
with vise

WILLIAM MARVY COMPANY, Dept. 90
479 St. Peter Street St. Paul 2, Minn.

FILE SAWS THE RIGHT WAY



SO EASY: With this new filing jig and jointer anyone can now sharpen any handsaw like new! When file hits hardened steel rollers teeth are finished and EXACTLY SAME HEIGHT. All teeth cut and saw runs true and smooth. Jig and instructions \$2.95 postpaid. Free literature.

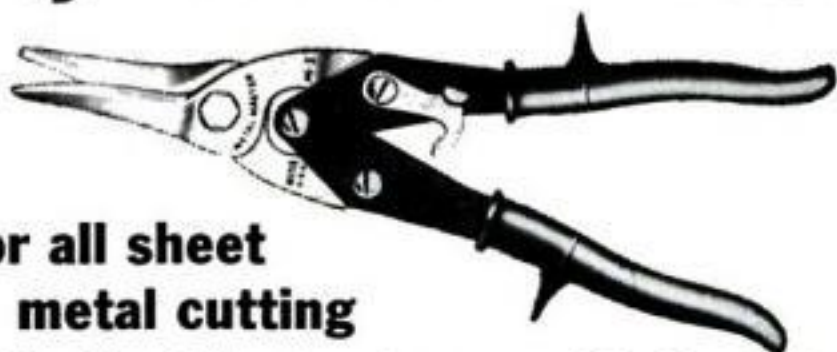
SHARPEN YOUR CIRCULAR SAWS

The RIGHT WAY on your own saw table. Sharpens rip, cutoff, hollow ground and combination blades—6" to 10". Saws stay round with correct bevel. Precision made, easy to use. GUARANTEED. Only \$8.95. Includes \$3.00 Grinding wheel. "TRU-CIRCLE" saw set automatically sets teeth at 10° or more \$2.95.

**AT DEALERS
OR POSTPAID**

A. D. McBURNEY 317 E. 4th St., Los Angeles 13, Calif. Dept. S-27

Buy the Best...WISS!



**for all sheet
metal cutting**

WISS Metal Master Compound Action Snips

#M-3. Easily cuts 18 gauge sheet metal. Cuts curves and circles as well as straight. Ideal for the home workshop. \$4.25. Rubber grips recommended, 60¢ extra.

WISS Straight Cut Snips

#9. Crucible steel inlaid blades. The basic snips for straight metal cutting. Gun metal handles. Overall length 12½". \$5.25.

WISS Combination Snips

#V-13. Solid steel, with gray japanned handles. Cuts curves and irregular shapes with ease. Handy pocket size. 7" long. Accurately tempered jaws and strong bolts. \$1.85.



*Prices slightly higher
Denver and West*



Quality for more than a Century

J. WISS & SONS CO. • NEWARK 7, N. J.

Best Value—Bar None!

DU-FAST* Oscillating Motion SANDER & POLISHER

Think of it! — The Du-Fast* Sander and Polisher gives a FULL ½" OSCILLATING MOTION... BIG 3 ½" x 7" FAST-WORKING SURFACE... USES INEXPENSIVE STANDARD CUT PAPERS!

**IT'S THE WORLD'S FASTEST CUTTING
OSCILLATING SANDER!**



Yes! — And it attaches in 10 seconds to any Home Utility Black & Decker ¼" Electric-Drill... Light weight for smooth, easy, continuous use without tiring... powerful for the toughest Sanding and Polishing job!

DU-FAST* is the perfect Sander and Polisher for every home use!

Over 150,000 Satisfied Users!

only **\$14.95**

(For Du-Fast* Attachment)

DU-FAST* Oscillating SANDER & POLISHER, powered by Black & Decker Home Utility ¼" Electric Drill.

* PAT. APP. FOR

MANUFACTURED BY

DU-FAST, INC. 32 East 4th Street
New York 3, N. Y.



Now you can clean your carburetor right on the engine!



The complete job takes just 20 minutes with GUMOUT and the easy-to-use applicator called the GUMOUTER.

Don't dismantle the carburetor. It's no longer necessary. GUMOUT cleans out all dirt, muck, moisture, gum and varnish—eliminates a frequent cause of engine trouble and roadside breakdowns. Your carburetor cleaned with GUMOUT will give smoother performance and gasoline economy.

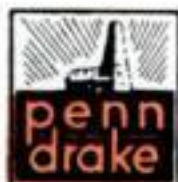
Get GUMOUT and the GUMOUTER from your favorite auto supply store or order direct.

Write for the free Carburetor Handbook.



GUMOUT DIVISION
Pennsylvania Refining Co.
Cleveland 4, Ohio
Butler, Pa. Edgewater, N. J.

Refiners of Penn Drake
Petroleum Products since 1880



GUMOUT DIVISION
Pennsylvania Refining Co.
2690 Lisbon Road, Cleveland 4, Ohio

Please send:

-Pints of GUMOUT @ \$1.50
-GUMOUTER @ \$4.75
- Carburetor Handbook free

Name

Address.....

City..... Zone.. State.....



MARCH 1953 281

BUILD YOUR OWN POWER TOOLS—TILT/ARBOR SAW

Exclusive GIL-BILT Build-It-Yourself Features

- No machining—build easily with hand tools only
- No blueprint reading—step-by-step pictorial plans, full scale patterns, actual photographs
- Sturdy wood, aluminum and steel construction
- Capacity and performance of commercial saws selling for \$60 and up

**BANDSAW
BELT SANDER
SAVE \$50.
OR MORE**

GIL-BILT 10-INCH TILTING ARBOR SAW

- 27x28 in. table, 13½ in. capacity in front of blade
 - 10 in. blade cuts ¾ in. deep, tilts full 45 degrees
 - Floor model 34" high, table always stays level
 - New Departure ball bearing arbor, ¾" precision shaft turned down for ¾" bore blades, alum. housing, shipped ready to run.
 - Jackscrew and 4½ in. dia. handwheel lowers and raises blade
 - Cast aluminum miter gauge and self-aligning rip fence guide
- GIL-BILT Metal Parts Kit includes Plans, ball bearing arbor, miter gauge and bar, rip fence guide, dado insert, lock knobs, jack screw mechanism and handwheel, and all other metal parts (less blade).....\$21.95
Same Kit with 10" Combination Blade.....\$24.90
Same Kit with 8" Combination Blade.....\$23.90



GIL-BILT 12-INCH BAND SAW

- Cuts to center of 24 inch circle
 - Handles stock up to 6 inch thick
 - 18x18 inch table tilts 45 degrees
 - Lower wheel and drive pulley runs on sealed New Departure Ball Bearings; Upper wheel runs on two ¾" bore Oilite Bronze bearings.
 - Upper wheel tension and tilt mechanism of cast aluminum, completely assembled.
 - Upper and lower blade guides. Each has ball thrust bearing, self-lub bronze jaws
 - Rigid cast aluminum wheels fully machined ready-to-install. Heavy rubber tires.
 - Uses standard 78 inch blades up to ¾ in. wide.
 - Fully enclosed mechanism for utmost safety.
- GIL-BILT Metal Parts Kit includes Plans, rubber tires, aluminum wheels, ¼ in. blade, ball bearing spindle, tilt mechanism, blade guides, table tilt segments, and all other metal parts.....\$21.95



GIL-BILT BELT SANDER

- 84 sq. in. sanding surface. Over 4 times the effective area of a 10 in. disc sander.
- Belt operates in either vertical or horizontal position, does all sanding operations.
- Driver drum and pulley turn on sealed New Departure ball bearings; tension drum turns on Chrysler Oilite bronze bearings.
- Spindle and tension mechanisms of cast aluminum, completely machined and assembled.
- Belt travels 1800 ft. per min. Over a MILE of straight sanding action every three minutes. Saves more "elbow grease" than any other tool.

GIL-BILT Metal Parts Kit includes Plans, ball bearing spindle, 4 in. driver drum, 3 in. tension drum, tension mechanism, table tilt segments, rubber tires, cloth sanding belt, and all other metal parts \$16.95. Also available—Plans and Parts Kit for 18" Band Saw, and 8" Tilt-Table Saw.

NO DEALERS—ONE LOW FACTORY PRICE! Return in 10 days for refund of purchase price if not satisfied. Prices include postage within 300 miles. Over 300 miles add 5%. Send cash, check, or money order for parts kit, or send \$1.00 for Step-by-Step Plans and order kit later less cost of plans. Plans sent postpaid anywhere in the world.

GILLIOM POWER TOOLS

P.O. Box 1-VC, Lambert Field, St. Louis 21, Missouri



**COMPLETE
PLANS
only
\$1.00
EACH**

LOW COST WELL DRILLING

Save well drilling costs... have all the wells you need... in cellar, barn or outdoors... shallow or deep wells. CON-SOL's low cost well driller is easily moved, set up and operated. Sturdy and reliable, its extra-hard, quickly installed, drill insert drills through many feet of solid rock before replacement is needed. Used by U. S. Depts. of Agriculture and Forestry, by the U. S. Navy, and by many well drillers. Fully guaranteed.

For 4" casings, price \$385 F.O.B. factory, includes drill, bailer and 100' cable. Additional cable, up to 300', ¾ H.P. motor or 1½ H.P. gasoline engine, available at extra cost.

HEAVY DUTY MODEL, for 6" casings, also available at \$1295 F.O.B. factory, equipped with gasoline engine.

Write for literature to Dept. PS3

CONSOLIDATED INDUSTRIES
WEST CHESHIRE, CONNECTICUT, U. S. A.



CUTS LINOLEUM—PLASTIC WITHOUT SPLINTERING!

GUARANTEED ALL
DURING YOUR
OWNERSHIP

**CUTS
1 INCH
SOFT WOOD
THIN METAL
PLASTIC**

MOST POWERFUL JIG SAW of its kind!

Portable. Any length cuts. Stroke adjustable. QUIET for apartments. SAFE for kids. Ideal for Dad's shop. UL-APPROVED. Dealers, or postpaid, \$24.95.

SYNCRON
ELECTRIC TOOLS

Write for FREE Circular

SYNCRON CORPORATION, DEPT. G-33, OXFORD, MICH.



Only \$24.95
Comes with
BUILT-IN MOTOR



BUILD YOUR OWN MACHINE TOOLS CASTINGS—DRAWINGS

Catalog with complete construction drawings of this 7 inch bench lathe with plain slide rest, 25 cents postpaid, or send one dollar for drawings of three lathes, three milling machines and six inch crank shaper. Refund on castings order.

POOTATUCK CORPORATION, 104 Sammis Pl., Stratford, Conn.

TOOLS AT WHOLESALE

PROFESSIONAL MECHANICS HAND TOOLS

Farm, Household and Special Tools

TOP QUALITY, FACTORY GUARANTEED

Write Today for
FREE CATALOG

MECHANICS CO-OP
Dept. W Oakland 8 Calif



GOLD-SILVER-COINS

Easily located with new Lightweight M-Scope Detector. Superior performance, lowest price, monthly payment plan.

FREE LITERATURE

FISHER RESEARCH LAB., INC.
PALO ALTO CALIF.

PAGE Garden Tractors

1953 MODELS More Work! Less Cost!

- 2 to 6 HP walking and riding machines • Over 60 attachments available! • Enclosed gear drive with reverse.

No belts — No chains!
Also new one-wheel "Bantam" model

Low Prices — Easy Terms

25 years' experience behind every PAGE — fully guaranteed!

Free Catalog

Shows over 60 attachments!

PAGE 1816 S. 81st St. Milwaukee, Wis.

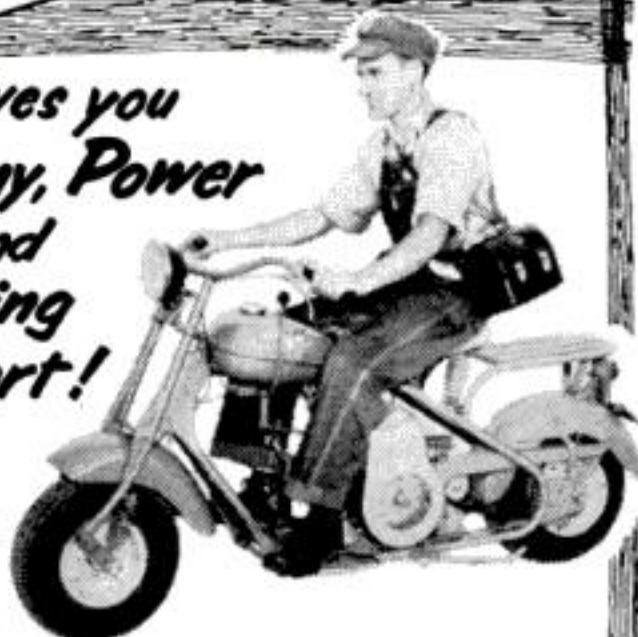


Plows, discs, tills, seeds, cuts grass and weeds, and many other jobs!

Cushman EAGLE

*gives you
Economy, Power
and
Riding
Comfort!*

75 miles
per gallon
50 miles
per hour



3/4c per mile—Total Operating Cost!

The new, improved Cushman EAGLE gives you real riding comfort, outstanding performance and unusual power at minimum cost. Penny-stretching operation (less than 1c per mile!) makes the EAGLE a national favorite. Easy to buy—easy to handle—ride it everywhere. Go Cushman in '53!

Write today for free illustrated literature. See your nearest Cushman dealer for a **FREE** demonstration.

CUSHMAN MOTOR WORKS, INC.
Dept. PS-3, 900 No. 21st St., Lincoln, Nebraska

WELD-BRAZE CUT-SOLDER



FOUR WAY WELDER CO.
2326 S. Michigan Ave.
Chicago 16, Ill. Dept. F3-CD

4 Ways to Handle 1001 Repairs Around Home-Garage-Garden

Complete welder with Twin Carbon Arc Torch and all operating accessories to do all types of metalcraft work. Easy instructions for work on iron, steel, bronze, brass and aluminum. Plugs into any properly wired AC or DC line. Low cost pays for itself in money saved and earned. A wonderful practical gift of a lifetime. Order now!

only \$14.75

f.o.b. factory

Larger Models Available on request.

4 way welder
Yours on a money back
10 DAY TRIAL

CHAMPIONS

**CHOICE of the
EXPERTS**
for

**Dependability, Performance
and Long Life**

**INSIST ON CHAMPIONS
FOR YOUR CAR!**

CHAMPION SPARK PLUG COMPANY. TOLEDO 1, OHIO



FREE CATALOG OF GOV'T SURPLUS

THE COMPLETE POWER TOOL

ACCESSORY SET — 100 pieces . . . Only 4.98

Post. & Hand. 50c

100 pieces for all 1/4" capacity Electric Drills and Motor Chucks. Kit contains: Grinding Wheels, Drills, Reamer, Mounted Stones, Polishing Compound, Buff Arbors, Rotary File, Steel Cutters, Circular Saws, Cutoff Wheels, End Wire Brushes, Polishing Wheels, Honing Stones, Sanding Cloth and Paper, Wire Wheels, Sanding Discs, and other useful items—1/8" and 1/4" shanks.



**THE SUPER ACCESSORY SET
ALL 1/4" SHANKS**

30 IMPORTANT ACCESSORIES

For all drills and chucks with a capacity of 1/4" or greater. Kit contains Grinding Wheels, High Speed Rotary Files, Taper High Speed Rotary Files, High Speed Pin Reamers, Felt Polishing Wheel, Wire Brushes, High Speed 1/4" Drill Bit, High Speed Countersink, Cloth Buff, Mounted Points and Wheels.

ALL ON 1/4" SHANKS Regularly 28.00 . . . 9.98 Post. & Hand. 50c

THE CRAFTSMAN'S KIT



100 ASSORTED NEW MOUNTED STONES AND STEEL CUTTERS

on 1/8" and 3/32" standard length shanks **9.98** Post. & Hand. 50c
Regularly 20.00—Our Special Price . . .

SET OF 2 SCALPELS In Presentation Case

1001 USES: Arts and Crafts, Photographic Lab. work, carving, dissecting, etc. Gov't. Surplus — Finest Surgical Steel

98c

Post. and Hand. 15c



PENCIL SHAPED TOOLS

True tempered. Ideally suited for working in almost every medium. Metal, Plastic, Wood, Leather, Clay, Stone, etc. Our set of 8 unused Gov't. Surplus Dental instruments amounting to 15.00. **YOURS FOR ONLY 1.98**

Post. & Hand. 35c



INSPECTION MIRRORS

Set of Three Mirrors and Handles only

1.89

Post. & Hand. 25c

9 Pc. 1/4" DRIVE SOCKET SET Entire Set only **1.98**



8 TOP BRAND SOCKETS WITH A FLEX HANDLE



A range of sizes from 3/16" to 7/16". Gov't Surplus. Post. & Hand. 25c

150-PIECE

Grinding, Polishing, Buffing, Sanding and Drilling Kit, for all Power Driven Tools.

KIT CONTAINS: Circular Saw with Mandrel; 2 Mounted Stones; 2 Burs; 2 Honing Stones; Unmounted Grinding, Rubber, Cut Off and Felt Wheels and Cylinders; Cloth and Paper Sanding Discs; Twist Drill; and Two Mandrels to accommodate the unmounted items. Maximum Shank diameter in this kit is 1/8". **ONE OF OUR MOST OUTSTANDING VALUES, only 98c** Post. & Hand. 20c



Our Set of Six 1/4" SHANKS H.S. ROTARY FILES

Reg. Our Price \$2.98 Post. & Hand. 50c
\$20.00 per set

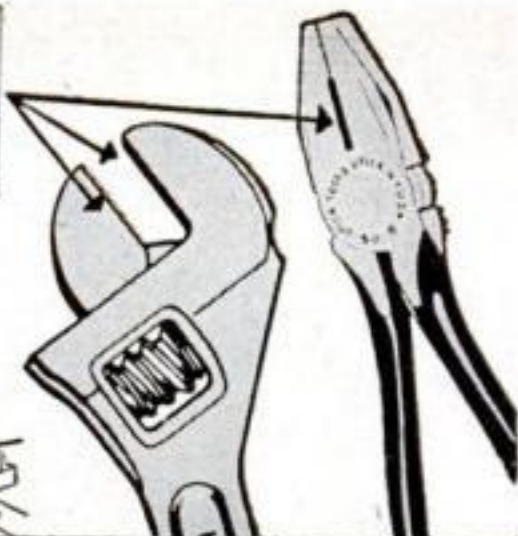
BARGAIN MIXES—All New Merchandise

	Set of 12 New Files up to 14"	10 ass't Taps up to 5/8"	15 ass't Drills up to 5/16"	6 ass't Round Dies 13/16" to 2" outside dia.	5 ass't Taper Pin Reamers 1/4" shanks	\$10.00 list value of Abrasive Cloths
	\$2.99	1.98	.98	1.98	.198	.98

Add Post. & Hand.

Dental Specialty & Sales Co. Dept. PS6 P.O. Box 692 Great Neck, N.Y.

Extra-hardened at points of extreme wear. Last longer.



**WHEN YOU
DO IT YOURSELF**

USE GOOD TOOLS

For those 101 jobs around the house, the auto and the yard, *good* tools get the job done faster and easier.

Utica pliers and adjustable wrenches are *good* tools, skillfully forged for rugged strength. And Utica's own process *extra-hardens* the tools at points of extreme wear.

Ask your dealer for Utica pliers and adjustable wrenches. It will pay you to remember the name — Utica.



IT PAYS TO BUY QUALITY TOOLS
and the world's best tools are made in U.S.A.

FASTER THAN \$100 ENGINEER INSTRUMENTS!

Packed in husky carrying case
12x11 3/4 x 3 1/4"



UP TO 50 FEET OR MORE

LEVELALL

Regular
50 Feet
\$8.95

**THE NEW, IMPROVED
WATER LEVEL FOR
SIMPLEST ONE-MAN
OPERATION**

Deluxe
75 Feet
\$12.95
Heavy
Case

**FOOTINGS
FOUNDATIONS
GRADINGS**

Anything you need level
LEVELALL does it

LEVELALL
81D Webster Street
Rockland, Mass.

Dealer inquiries invited

LEVELALL

81D Webster St., Rockland, Mass.

Mail me.....Levelall instruments at **\$8.95**
Mail meDeLuxe Levelall at **\$12.95**
you guarantee satisfaction or money back upon return of Levelall within ten days.

Name.....

Address.....

City.....Zone.....State.....

☐ Send C.O.D. I will pay postman full purchase price plus delivery charge on arrival.

☐ Full purchase price is enclosed. Send postpaid (Postage prepaid on orders in U.S.A. only.)

NATIONAL SUPER-VALUE SPECIALS

ROTO-MATIC ROTARY TILLER

- Prepares Soil Without Spading
- 1 1/2 H. P. Briggs & Stratton Engine
- Does 4 Jobs in One Operation
- Gives Deep, Fast Cultivation

**ONLY
\$109.50**



Send for our 1953 Catalog for these and other super values.

RELIABLE GARDEN TRACTOR

- 1 1/2 H. P. Briggs-Stratton Engine
- Positive 2-Wheel Drive
- 400 x 8 Traction Tires
- Cultivates, Plows, Discs etc.

**ONLY
\$109.50**



NATIONAL FARM EQUIPMENT CO., Inc.

142 GREENE STREET

NEW YORK 12, N. Y.

HANDIEST CABINET EVER MADE FOR STORING SMALL PARTS

What a Relief! No more frantic searching for misplaced items. No other cabinet has so many desirable features. Maximum strength, crystal-clear plastic drawers can't spill accidentally. Strong, all-steel welded cabinet with baked-on gray finish. 32 drawers subdivide into 96 compartments—lengthwise or crosswise. Drawers 5 3/4" long, 2 3/4" wide, 1 7/16" deep. Sent complete, postpaid. Money back if not satisfied within 10 days. Free catalog on 8 other sizes.

Model J-32
Illustrated **\$12.95**

**CONTENTS
VISIBLE
Crystal-Clear
Drawers**



MFD. BY

AKRO-MILS, INC., 816 E. Market St., Akron 5, Ohio

15 1/4" high
12 1/2" wide
5" deep

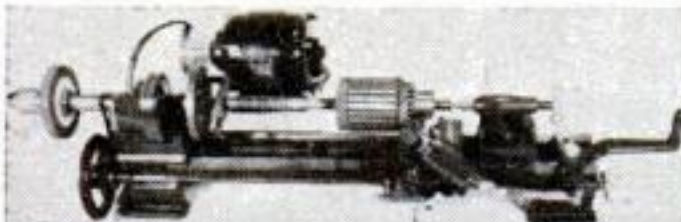


AMAZING, PERMANENT MAGNETS—WILL NOT WEAKEN! NON-ELECTRIC
Retrieve guns, tackle, tools and other steel items from lake, river, plating tanks, drains or other hard-to-reach spots. Recover drills, taps, etc. from sweepings. Clear alley of harmful tacks, nails. Many other uses. Pays for itself quickly. **GUARANTEED.** Try any magnet one week. Money refunded if you are not well pleased.

No. S-725 (Weights 54 oz.) Has pull of 225 lbs. on steel block **\$15.00**
No. S-675 (Weights 49 oz.) Has pull of 175 lbs. on steel block **\$10.50**
No. S-650 (Weights 41 oz.) Has pull of 150 lbs. on steel block **\$ 8.50**
No. S-30 Hobbyist assortment of six small magnets..... **\$ 1.50**

Send Money Order or check. We pay postage. No C.O.D.'s.

MIAMI MAGNET COMPANY, 3240 N.W. 27th Ave., Miami 42, Fla.



**ONLY
\$65.00**
**FREIGHT
PREPAID**

WE SEND YOU A LATHE—NOT LITERATURE

To Prove by Trial the Biggest Lathe Value Ever Offered

The finest quality, largest capacity lathe ever offered at this low price. Nothing like it available at any store. Let our money-back guarantee prove it to you. We'll send you a brand new lathe freight paid. We let you see our lathe—feel it—actually machine with it while you make up your mind to keep it or shove it back in the crate and return it freight collect. And what a lathe it is! Sturdily built with bed ways machined with double V to 60°. The compound swivels 360° on a center pilot and is locked with 2 T-slot bolts. Lathe may be operated with a 1/2 h.p., 1750 r.p.m. motor. Bed length 26" with cutting range 18 1/4", 6" swing. Sent complete with hand undercutter and lever hand feed, 2 female centers, 2 male centers, driving dog, arbor attachment and grinding wheel, V-belt, 2 power feed belts, tool bit, face plate and dog. The lathe is precision and sturdily built to handle every metal or wood job within its dimension cap. Ideal for factories, hobby and home workshops or as armature lathe for garages. Full price freight paid only **\$65.00**. 10 day free home trial—you must be satisfied or return it at our expense for your money back in full. Immediate delivery while they last. Send check or money order for **\$65.00** to: **HAMILTON PRODUCTS, INC., 12416 Euclid Ave., Cleveland 6, Ohio**

GIGANTIC MAIL SALE

WAR SURPLUS
EXCESS INVENTORY
BANKRUPT STOCK

POWER PLANTS and GENERATORS

- Master Plants, 5KW, 115-230-v, 60-c, 4-cyl. engine, manual start. Cost over \$1100.....\$531.70
- Onan Plants, 5KW, 115-v, 60-c, 4-cyl., push button start. Cost \$1400.00.....\$689.50
- Onan Plants, 1 KW, 115-v, 60-c. Full automatic start-stop. Cost over \$500.00.....\$291.50
- Burdax Plants, 2KW, 115-v, 60-c.....\$279.50
- Homelite Plants, 1.5KW, 115-v, 60-c \$199
- Kato Generators, 5KW, 115-v, 60-c, with control panel, drive pulley, etc. 1800 RPM. 1 phase. Cost \$550.....\$259.50
- Generators, 115-v, 60-c. Ball bearing, 500-w. \$94.50; 1000-w, \$99.50; 2000-w, \$138.40

Write for Power Plant Catalog

Winches - Hoists - Blocks

- Boat, dock, business hand winch, 1-4 gear ratio, Special.....\$19.95
- Farm - Truck - Contractor heavy duty hand winch, Dual ratio 1-3, 1-9. Finest cast steel construction. Special.....\$29.98
- Chain Hoist, Lever type, 3000 lb.\$19.48
- Winch Cable, 1/4" super-flexible (4000 lbs. cap., 30' with load hook).....\$9.90
- Army Snatch Block, 13,000 lb.\$12.95
- \$165 Airplane Winch, Beautifully made. Requires reducing gear. Sale.....\$17.49

HYDRAULIC BARGAINS

- Build your own loaders, diggers, presses, plow lifts, etc. Lowest prices. Savings to 80%. All prepaid to you.
- Pump, 1000 lbs., 12 g.p.m., 400 r.p.m.\$45.50
- Cylinder, 3" bore, 24" stroke, 7000 lb. lift\$39.90
- Cylinder, 2" bore, 10" stroke, 3141 lb. lift, Sale\$16.50
- Control Valve, For single or double acting cylinders. Sale.....\$17.98
- Pressure Gauges, 1000 lb., 1500 lb., 2000 lb.\$3.49
- Hyd. Hand Pump 1000 lb. Cost \$35. Use for presses, lifts, etc.....\$10.50

Write for Hydraulic Data-Catalog.

BURDEN PAYS ALL SHIPPING CHARGES

WATER PUMPS and SYSTEMS

- Save up to 60%. Ask us for expert advice on your problem. Pumps for wells, basements, weed spraying, septic tanks, garden irrigation, etc.
- Centrifugal Pumps, Cast iron, stainless steel shaft, bronze impeller, ball bearings. No. 75, 3/4", \$18.90; No. 100, 1", \$28.90; No. 150, 1 1/2", \$35.60.
- Bronze Rotary Pumps, Low pressure (25 lbs. max.) Self priming, No. 12, 1/2".....\$12.75; No. 34, 3/4", \$16.95; No. 101, 1", \$22.95; Hi-Pressure type (150 lbs. max.) No. 612, 1/2" \$14.50; No. 634, 3/4", \$20.95; No. 610, 1", \$27.95.
- Irrigation Centrifugal Pump, 4000 g.p.h. Self priming, Pressure to 25 lbs. A buy for contractors, farmers, Reg. 885. SALE.....\$59.50
- Burdax Shallow Well System, 110-volt, 60-c, 300 g.p.h. 40 lbs. pressure, fully automatic. Easy to install.....\$69.50
- Adj. Auto Pressure Switch, \$4.95; 3/4" foot valve, \$2.49; pressure gauge 0-60 lbs. \$1.89; also hose, strainers, etc. at real savings.
- Hand Pump, Lever type, high capacity, Pump basements, tanks on farms, etc. Cost \$35, \$27.80

Write for useful Water Pump Data-Catalog

CONTRACTORS WATER PUMP

Wonderful buy in top quality latest model make 4000 gal. per hr. 2 h.p. Briggs self priming centrifugal pump. With suction hose and outlet. \$175 value. Fully guaranteed. PPD.\$124.50

SUPER CLOSEOUT BARGAINS

- Gas and Electric Chain Saw.....\$74.50
- Plane Propellers, new (\$151).....\$12.95
- Electric Drills, 1/2", Jacobs chuck.....\$29.95
- Garden Tractor (2 h.p.)\$119.50
- NAVY Weather Bureau Thermometer \$9.85
- Wind Driven 6-Volt Plant.....\$33.95
- \$60 Air Grease Guns.....\$23.85
- Guy Cable & Turnbuckle.....10 for \$3.89
- Finest Magneto, 5-bar phones.....\$13.90
- City Phones, Desk and Wall.....\$4.99

SPECIAL For The Month WEED SPRAY OUTFIT

- (110 available)
- Factory closeout! World's finest stainless steel 7-row, 13-nozzle, 20-ft. outfit. Complete with pump, push button selector valve, hose, etc. List \$250.00. SALE.....Prepaid, \$129.50
- 5-row, 9-nozzle, 14-ft. all-brass outfit. List \$140.00. SALE, Prepaid\$79.50

AIR COMPRESSOR UNITS

- Paint, blow up tires, control termites, clean greasy engines, blow dust, etc. Build your own or buy ready-built units.
- DeLuxe Air Kit. Consists stainless tank 12"x24", finest 1-cyl. 3 cfm piston compressor, valves, gauge, fittings, hose, excellent paint gun, blow gun, pressure regulator, chuck and "How To Build Portable Outfit." Special\$45.49
- Economy Air Kit. Same as above except 6"x24" tank and no regulator or paint gun. Each.....\$31.90
- Air Components. Top quality. 1-cyl. piston comp. \$20.50; 2-cyl. pis. comp. \$49.50; Adj. Auto. pressure switch, \$4.95; pressure regulator, \$2.65; Adj. safety valve, \$1.95; Pressure gauges, 0-160 lbs. \$1.89.
- Air Operated Power Grease Gun...\$23.95

Correspondence School Bargain

- Lincoln Engineering School closes because of high operating costs. We offer limited quantity of complete courses, Radio or Electrical at fraction of regular tuition rate. Deal #1, Complete Radio or Electrical Course Texts, (27 fine lesson texts) \$5.95. Deal #2, Combined Radio and Electrical Course Texts (41 lesson texts) \$9.95

ORDER FROM AD, or Write for 4 FREE Catalogs!
OUR 30-YEAR POLICY: ● Everything Guaranteed Satisfactory
● We Pay Shipping Charges in U.S.

FREE CAT-ALOG

BURDEN SALES COMPANY

825 "O" ST.

LINCOLN, NEBRASKA

KING MIDGET

WORLD'S LOWEST PRICED
2 PASSENGER AUTO



JUST OUT—NEW CONVERTIBLE!

Operate it for 75c per week. Amazing performance. Surprising comfort. All steel construction. Ready to run or assemble it yourself with our bolt together parts. Rider Agents wanted, earn your car Free. Send 25c for detailed literature or \$1 (refunded first order) for actual assembly book and service manual filled with photos, drawings, specifications, etc.

MIDGET MOTORS MFG. CO., ATHENS, OHIO

BEAT SUDDEN DEATH



Don't risk death or serious injury at night because you can't be seen. Light up your Car, Truck, Bicycle, etc., with the famous "SCOTCHLITE" brand reflective tapes. Tests have proven that the glowing "SCOTCHLITE" brand tapes on automobile bumpers can be seen 70% faster than tail lights!

This amazing material reacts to the faintest light under all weather conditions and has long been used by our armed forces to mark landing strips, channel markers, and obstructions. Now for the first time it is available to you in complete easy to use kits.

STOP TAKING CHANCES AND ORDER NOW!

- Kit #2 protects (1) car or truck, front & rear, now only.....\$1.00 ppd.
- Kit #3 This is a necessity for all bicyclists! Lights up front & rear fenders.....\$0.50 ppd.
- Kit #4 Now you can make your own roadside signs, light up your mailbox, etc. Kit contains the large, die cut, letters & numbers that you ask for. Each letter or number.....\$0.10 ppd.
- Kit #5 OBSTRUCTION KIT...Sailors...light up those piling, docks anchor can, etc. Farmers mark that barn entrance, garage door, gates, etc. This kit has a million uses. Kit of (2) large 3"x8" pieces of reflective material \$1.00 ppd.

SAFE-T-GLOW PRODUCTS

Box 2467

Dept. P52

Gary S. Ind.

Introducing NOVA PRECISION-BUILT WALL UNITS



Space-savers—money-savers!
Precision-built—assembled in 30 minutes! Here are wardrobes, vanity units, dressers, desks, music units, bookshelves, storage walls—each a beautiful piece of furniture in itself; used in combination, there is no sense of sectionalizing.

10" to 26" in depth—they can even take the place of a wall, save as much as 5 feet in total house length. Wide choice of woods—unfinished. Units, knocked down for quick assembly. Inner walls and back are insulating, sound-deadening, mildew-proof. Write today for free fully illustrated literature. Dept. 43C—NOVA SALES CO., Trenton 3, N. J.

best
white tape
made

ONLY
98¢*



The new "Evans White-Tape" has everything you'll find in tapes costing over \$1.50—plus.

- snow-white blade with bold, legible, jet-black numerals and graduations. Graduated in 32nds for first 6 inches.
- sturdy die-cast case heavily chrome-plated, calibrated for quick reading inside and outside measurements.
- blade $\frac{1}{2}$ " wide made of finest high carbon steel—tempered—Bonderized—enamelled—baked.
- blade replaceable in seconds—without tools—without even opening case. And Evans replacement blades cost far less.
- every "Evans White-Tape" is unconditionally guaranteed.
- exclusive Evans automatic brake gives smoother push-pull action with absolutely no "creeping" of tape into case.
- underside is white, too. Mark with ordinary pencil, remove mark with flick of thumb.
- unheard-of low price*: 10-ft. \$1.49; 8-ft. \$1.19; 6-ft. 98¢. Prices higher in far west and Canada.

Evans & CO Elizabeth, N. J., Montreal, Que. 7629
Makers of Evans 6-ft. Folding Rule and "Folding Yardstick"

WOODS

get this **BIG Manual** and Bargain Book

Loaded with how-to-do it articles on wood-finishing, veneering, making inlay pictures and cabinets. Contains 83 distinct inlay designs and borders, plus a wood identification panel of 60 different varieties. All shown in full natural color suitable for framing.



A MULTITUDE OF MATERIALS

Lowest Prices On

Veneers	Period Furniture Hardware
Inlays	Modern Picture Frame Molding
Lumber	Upholstery
Plywood	Hand and Electric Tools
Plans	Finishing Materials
Supplies	Decorative Metals
Plastics	Leather

Albert Constantine & Son, Inc.
Dept. PS-10, 797 E. 135th St., N.Y. 54
ESTABLISHED SINCE 1812

● VISIT US at our N.Y. Plant. Demonstrations every Saturday on making inlaid pictures, wood finishing and other crafts. Everyone invited.

SEND THIS COUPON!

Albert Constantine & Son, Inc., Dept. PS-10
797 E. 135th St., New York 54, N.Y.

Enclosed find 50c (refunded on 1st order) for your copy of "Manual For Craftsmen" No. 52.

Name _____
Address _____
City _____ State _____

READY CUT HOMES

\$2150 AND UP
Freight paid. Save up to \$1000 on production method More compared with builders' prices. Anyone can assemble with simple plans furnished. Complete, including paint, hardware, roofing, glass, nails, etc. Send 25c in coin for full color catalog, 57 modern low priced homes and floor plans. Complete building plans ready for filing at low cost. Sold separately if desired. Five Easy Payment Plans including monthly payments.

INTERNATIONAL MILL & TIMBER CO., Bay City, Mich., Dept. P.S.33

NEW COLOR CATALOG FOR ONLY 25c



DIRECT FROM MANUFACTURER

6" Carbide Tipped Saws

Available for first time for home and shop use. These 12-tooth, carbide tipped circular saws outlast steel saws 10 to 100 times. Excellent for ripping, cross cutting; for wood, plastics, masonite, asbestos, formica and non-ferrous metals. Resists abrasion of plastics and urea glues. Special analysis steel bodies, same workmanship and materials furnished industrial users for years. Choice of $\frac{1}{2}$ ", $\frac{3}{8}$ ", $1\frac{1}{8}$ " round and $\frac{1}{2}$ " square and diamond arbors. Shipped anywhere in U.S. Postage paid for \$9.95. Send check or money order, satisfaction guaranteed, specify arbor hole desired. (Sharpening service \$1.50 plus postage.)

W. F. MEYERS CO., INC., Bedford, Ind.

PRECISION
TOOLS
SINCE 1888

BUILD YOUR OWN POWER MOWER

With Parts We Furnish
Why break your back mowing field or lawn. Now anyone can save time, money and effort by building their own Power Mower. Build it to fit your needs, in a short time without special tools.

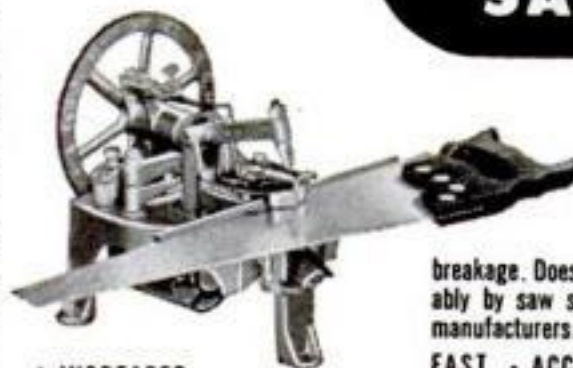
**PULLS
ITSELF,
STEERS
ITSELF**

WRITE FOR FREE BUILDING INSTRUCTIONS—NO OBLIGATION!

T & H Mfg. Co., Dept. S-14, 811 E. 31 St., Kansas City, Mo.

BeMaCo Dependable

AUTOMATIC SAW SET



Sets 400 teeth per minute on hand or band saws $4\frac{1}{2}$ to 16 point. Hammer and anvil action sets teeth accurately and uniformly. . . . No tooth

breakage. Does a perfect job. Used profitably by saw shops everywhere and saw manufacturers. Every machine guaranteed!

FAST - ACCURATE - DEPENDABLE

★ INCREASES PROFITS **BEAVER MFG. CO.**
800 S. ISIS AVE. • INGLEWOOD, CALIF.



Double-Lever Action Locks Jaws with TON-GRIP

Look INSIDE the most useful tool in the world! Only Double-Lever action could provide **Ton-Grip**. See how a squeeze of the hand locks jaws to work! Won't slip. Can hold, twist, bend, pull, ratchet, cut! How you'll USE it! 7" and 10" only \$1.85 to \$2.60. At your hardware dealer.

Manufactured Only By

PETERSEN MFG. CO., Dept. P-3, DeWitt, Nebr.

SHEET METAL BRAKES

Angles, flanges, Pittsburgh locks, 24 G. steel, heavier aluminum. Cam locking, mount on bench, truck or floor stand. Truss braced steel. Express collect, 30", 65 lbs. \$28.50. 36", 75 lbs. \$33.00. 48", 100 lbs. \$48.00. Portable stands, 32" hi, 35 lbs. \$7.00



IRON BENDER forms hooks, angles, eyelets, etc. Capacity 1/4x2", 5/16x1 1/2", 10 parts, all steel. Express Collect. **\$9.50**

30" CURVE FORMER. Forms straight and tapering pipes 2" to 2 ft. dia. 20 Gauge. Express collect. **\$10.50** (Immediate delivery. Order direct, cash or C.O.D., or send for folder.)

VYKE BRAKE CO., S-3016 Leavenworth, Omaha 5, Nebr.

Send for this Giant Automotive Catalog



& Save to 50% on All Parts & Accessories
1953 EDITION JUST OUT!

World's largest Auto Accessory & Parts Catalog. Over 50,000 items:—Hollywood Accessories, Hi-Speed Equipment, Rebuilt Engines, Everything for all cars & trucks. We have that Hard-To-Get part. Jam packed with bargains. Completely illustrated. (134 pages). Send 25c (Refundable)

J. C. WHITNEY & CO., 1917-TT Archer Ave., Chicago 16, Ill.

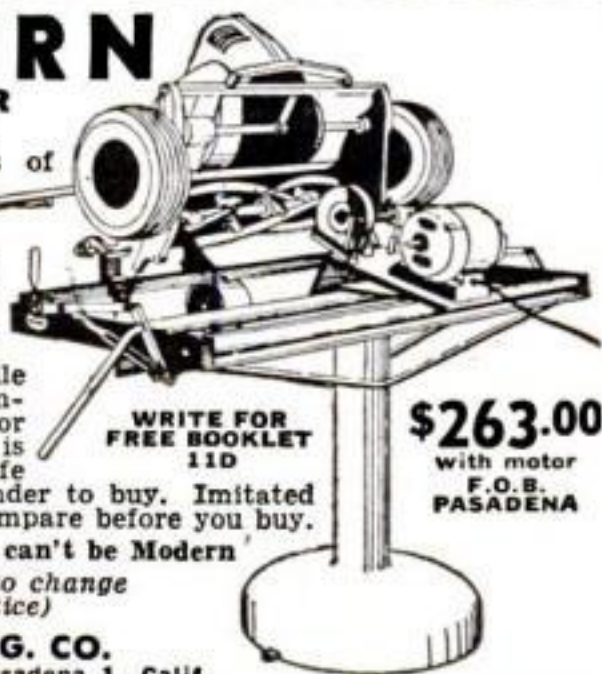
MODERN LAWN MOWER SHARPENER

Service departments of leading Lawn Mower manufacturers use the Modern Lawn Mower Sharpener. One lever moves lawn mower into grinding position. Gasoline and oil remain in engine while sharpening, no dismantling of wheels, roller or handle. The Modern is a precision bed knife grinder—no extra grinder to buy. Imitated but never equaled—Compare before you buy. If it isn't a Modern it can't be Modern

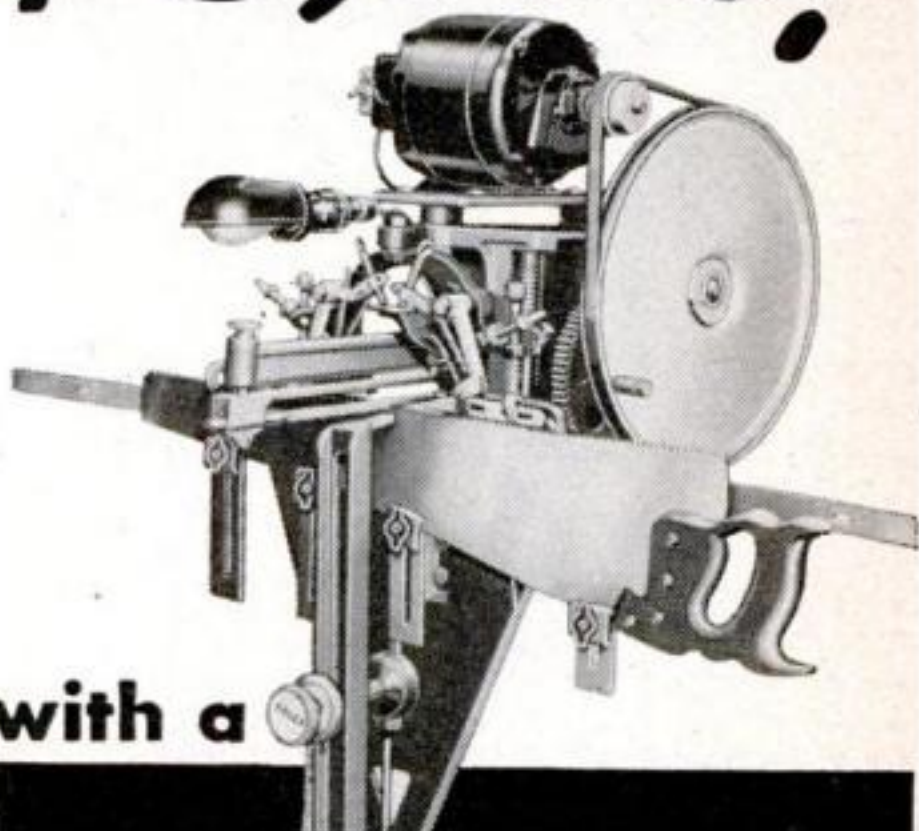
(Prices subject to change without notice)

MODERN MFG. CO.

160 N. Fair Oaks - Pasadena 1, Calif.



Last Year's Profit \$3,000!



with a FOLEY automatic SAW FILER

"Last year's profit amounted to \$3,000. Not so bad for a one-man outfit"—from Chas. C. Hough. James B. Williams wrote us—"I made \$765 last year filing saws, and it sure comes in handy. I do this work in my spare time." Men in communities of all sizes make up to \$3 or \$4 an hour with the Foley Saw Filer working full time or part time. That extra money comes in mighty handy in these days of high prices.

It's no trick to take care of the saw filing for your neighborhood hardware or lumber dealer—plus looking after the saws for farmers, townspeople, manual training departments and factories. The Foley files all hand saws, also band and cross-cut circular saws. It's a cash business, no canvassing, no eyestrain and no experience needed.

FREE BOOK SHOWS HOW TO START

"**MONEY MAKING FACTS**" shows just how you can start at home in your spare time working in your basement or garage. It's an immediate cash business that can develop into a full-time repair shop. Send coupon today—no salesmen will call.



Send for FREE BOOK

FOLEY MFG. CO., 319-3 Foley Bldg. Minneapolis 18, Minn.

Send me free book "**MONEY MAKING FACTS**"

Name.....

Address.....

**NOW! SAW 2x4's
IN ONE EASY CUT
WITH NEW LARGER
'ARCO-SAWS'**

AT BETTER
HARDWARE
STORES
EVERY-
WHERE

ARCO SAW

No. 455
"ARCO-
SAW"
For Depth & Bevel Cuts. **\$12.50**
with ALL GAGES & 5" "ARCO SAFECUT" Blade.
No. 454 "ARCO-SAW"
For Straight Cutting. **\$10.95**
Same as above, less gages.
Has accurate Visual Guide.

AMAZING NEW SAFE-CUT BLADE ALLOWS ANY 1/4" DRILL TO WHIZ THRU HEAVY LUMBER, WALLBOARD, PLYWOOD, etc.

At last, here are the first—the only—gear driven saw attachments to whiz thru 2x4's in one cut! Imagine, now you can build anything from bookcases to a bungalow with these sensational new saws. A moderately priced drill will do the job because of new "ARCO SAFECUT" Blade.

ONLY "ARCO" GIVES YOU THESE FEATURES:
5-inch Safecut Blade—cuts faster—uses 30% less power, Graduated Depth & Bevel Gages for cuts to 1 3/4"—bevels from 0 to 45°. Adjustable Rip Gage & Visual Guide, Sturdiest and Easily Adjusted Safety-Yoke keeps drill steady, Worm Drive Clamp releases drill in seconds. Precision Gear Box with Steel Gears.

90-DAY FACTORY GUARANTEE.
REPLACEMENT BLADES: Specify 5" Safecut, or Combination, or Rip, or Crosscut Style. . . . **\$1.75**

NEW! 'ARCO SAFECUT' SAFETY SAWBLADES

The Safest, Fastest Cutting Sawblade Ever Made! Made of finest tempered tool steel. No "Kick-back" accidents — cannot drag hand into blade. Easily & quickly resharpened with ordinary handfile.

6" Blade...\$1.75 7" Blade...\$1.95 8" Blade...\$2.15
Special Bores for Skil, Mail, B&D Saws—Add 30c

UNCONDITIONAL 10-DAY MONEY-BACK GUARANTEE

DEALERS: Write for nearest jobber
BUY THE BEST—see your hardware dealer now! Don't accept inferior substitutes—if not available send us check or M.O. (Postpaid). C.O.D.'s—postage extra.

ARROW METAL PRODUCTS CO.
Dept. PS-3, 140 WEST BROADWAY, N. Y. 13, N. Y.

STOP CHANGING MOTOR OIL!

End this needless expense forever with

RECLAIMO Today's Most Advanced OIL RE-REFINING filter FOR CARS, TRUCKS, TRACTORS

Continuously cleans and RE-FINES motor oil as you drive by utilizing motor heat — keeps oil in high grade lubricating condition at all times.

"RECLAIMO"

- REMOVES SOLIDS (by filtration)
- REMOVES WATER (by distillation)
- PREVENTS Excess Fuel Dilution
- PREVENTS Acid and Sludge Formation
- ADDS Thousands of Miles to Engine Life

MAINTAINS Stable Viscosity **ELIMINATES** All Oil Changes

Send for Free Vital 32-page book "OIL FACTS" (with bona-fide \$1,000.00 offer on page 30). Gives you complete "Reclaimo" story and details of our extraordinary 90 DAY NO-RISK TRIAL OFFER.

RECLAIMO MFG. CO., INC.
5083 Elston Avenue Dept. P-3 Chicago 30, Illinois
Wm. Schwalge, U.S. Pats. 1757223, 1834654, 2068473.

DEALERS WANTED

U.S. BUREAU OF STANDARDS, Bul. 86 States, "Oil does not wear out—mechanically."

BARRON Drill Press TOOLS

FOR WORKSHOP AND INDUSTRIAL USES...

● Over 40 precision built woodworking tools and accessories... Hi-Speed Router Bits—Rotary Surface Sanders & Drum Sanders—Safety Shaper Cutters—Dovetail Cutters—Large Auxiliary Metal Tables—All Metal Shaper Fences—Spindle Adapters—Handy Bench Vises. Many other items indispensable for accurate, useful, versatile workshop use. Every tool sold on complete satisfaction or your money back. See your Barron Dealer. Ask for special folder — "24 Extra Uses for Your Drill Press."

ROTARY PLANER
Planes • Rabbits
Tenons • Panels
Routs • Bevels

Only \$7.50 COMPLETE

BARRON TOOL CO. INC.
3 6 Architects Bldg., Detroit 1, Mich.

FREE Workshop Guide & Catalog

MAKE YOUR OWN POWER LAWN MOWER \$13⁹⁵

with this DRIVE CUTTER ASSEMBLY

Constructed for those who desire to build their own mower or to replace your old cutter assembly. Complete with 18" blade and double ball bearing drive.....

Add 50c to cover handling & shipping. ANYWHERE IN USA
Send check or M. O.

ATLAS KEEN MOWER
229 S.W. BLVD. Dept. P.5.3 KANSAS CITY, MO

Print Your Own

Cards, Stationery, Advertising, labels, circulars, photo and movie titles, church work, tags, etc. Save money. Sold direct from factory only. Raised printing like engraving, too. **Print for Others, Good Profit.** Have a home print shop. Easy rules supplied. Pays for itself in a short time. Write for free catalog of outfits and all details.

KELSEY PRESSES
KELSEY PRESSES, N-33, Meriden, Conn.

BANDSAW OWNERS - SAW STEEL & OTHER METALS

Change over your two-wheel bandsaw for wood, plastic, or metals in only two minutes. (Up to 16" wheel diameter) Precision-built gear reducer, self oiling bearings, rigid design with all necessary parts included. State wheel and drive shaft diameter..... **\$18⁹⁵ P.Pd.**

Finest quality steel cutting bandsaws 1/4", 3/8", or 1/2" widths \$3.35 per foot. State width and length.

10 DAY MONEY BACK GUARANTEE! CHECK OR MONEY ORDER

RAYLEN PRODUCTS
194 Rivermeadow Drive Rochester 18, N. Y.

USE KESTER METAL MENDER (GENUINE TIN LEAD SOLDER)

For all Metal Repairs

FREE: "Soldering Simplified." 16 page illustrated booklet. Get your copy now.

Kester Solder Company
4254 Wrightwood Ave. Chicago 39, Illinois

KESTER METAL MENDER SOLDER
ACID CORE



... REAL ROLLING ECONOMY

You can't beat a CON-SOL for economical rolling. Hundreds of owners of previous models — home owners, managers of parks, golf courses and tennis clubs — all like its low first cost, its even lower upkeep and the way it handles.

Even greater value is built into the 1953 model, which includes no less than 10 important new features — all designed to increase strength, prolong roller life, improve performance, and increase ease of handling.

Weight adjustable from 300-1200 lbs. to suit soil conditions. The heavier All-Purpose Model with sprinkler tank which drips water on the rollers to prevent sticking when used on asphalt — very popular with contractors in laying driveways and sidewalks — is adjustable to over 1400 lbs.

Write for literature, Dept. PS. 3

Prices start at \$350.



CONSOLIDATED INDUSTRIES, INC.
West Cheshire, Conn., U. S. A.

CHOOSE FROM PROFESSIONAL QUALITY

WESTCRAFT TOOLS

AT WESTERN AUTO

DRAINS Cellars, Laundry Tubs; CIRCULATES Oil; IRRIGATES Gardens

Original "Type P" Pump has 2400 GPH capacity. 360 GPH 75' high, or 1500 GPH from 25' well. Use any 1/8 to 1/2 HP motor. DOES NOT CLOG. See Popular Science, August, Page 200. Only \$6.95 postpaid if cash with order. (West of Mississippi, add 50c.)

MONEY BACK GUARANTEE!
Also Gear Pumps in all sizes.

LABAWCO PUMPS, BELLE MEAD 3, N. J.



CASH IN YOUR SPARE TIME

UP TO \$40 A DAY IN YOUR OWN BUSINESS. Easy to start repeat cash business at home with the New BELSAW...sharpening and setting circular saws, grinding planer and jointer knives. Low Cost, only \$15 down...Start to work the day your BELSAW arrives. No experience needed. Hundreds of jobs in your neighborhood. Send Today for Free Book, "Lifetime Security".

BELSAW MACHINERY CO
4405 Field Bldg., Kansas City 11, Mo.



FREE BOOK
TELLS HOW

DRESS YOUR DULL GRINDING WHEELS

At last you can save time and money by reconditioning your dull grinding wheels. Apply this Genuine Industrial Diamond Dressing Tool to your dull grinding wheel for a few minutes and you'll get faster cutting results and better work. Made by the company that specializes in supplying diamond cutting tools to industry. LIMITED SUPPLY. ORDER NOW.



GENUINE
DIAMOND
DRESSING
TOOL

3.00

Post
Paid
in
U.S.A.

11 1/4" long
with dia-
mond set in
tip.

**MONEY
BACK
GUARANTEE**

Industrial Diamond Company
2392 Wolcott Ave., Ferndale 20, Mich.
Enclosed is \$3.00 for ☐ Industrial Diamond Dressing Tool.

NAME.....

ADDRESS.....

GET THE WORLD'S LEADING TV & RADIO CATALOG

FREE

236
VALUE-
PACKED
PAGES



1953 ALLIED BUYING GUIDE

Save on Everything
in TV & Radio!

Everything for Experimenters,
Builders, Amateurs, Service-
men, Engineers and Soundmen

Get ALLIED's big 236-page Catalog featuring the world's largest selections of latest top-quality electronic equipment at lowest, money-saving prices. See the newest in custom TV chassis, TV accessories, FM and AM radios, Amateur Equipment, High-Fidelity sound, P.A. systems, recorders, test instruments, builders' kits — plus thousands of parts, tubes, tools and books. Get more for your money — send today for your FREE 1953 ALLIED Catalog!



FREE
CATALOG

SEND FOR IT TODAY

ALLIED RADIO

ALLIED RADIO CORP., Dept. 7-CC-3

833 W. Jackson Blvd., Chicago 7, Illinois

☐ Rush FREE 1953 ALLIED 236-Page Catalog

Name.....

Address.....

City.....Zone.....State.....

BUY from C&H **HUNDREDS**
of SENSATIONAL BARGAINS!
you'll save and be sure



BOOSTER FANS

fit any 8" to 12" furnace pipe. Mounting frame, 6" blade, 110 v. motor, 60 cycle 1550 rpm with 6' cord. Silent operation. Easy to install. Warm those rooms with long runs. List \$11.95. Our price **\$6.95**. **REGISTER FAN** for hot or cold air with bracket ready to mount; motor, 6" blade, 6' cord **ONLY \$7.50**

80-1 ratio Gear Reducer

Double reduction, reduces 1/6 to 1/2 HP electric motors 1750 rpm to 22 rpm. Reg. \$45. **NOW \$26.00**



RUBBER HOSE

Long wearing **GOODRICH** 2 ply 2" I.D.; 25 ft. lengths, worth \$25. Only **\$4.95**; 3 lengths for **\$12.00**

ELEVATORS

Build your own dumb waiter for store, shop, home, restaurant, or incline elevator for hills, and steep shores at factory prices. We furnish **Steel Car—Gull Rail**—**Worm Gear—Electrical Controls—Steel Cable**. **SEND 25c** for completely diagrammed instructions with price list.



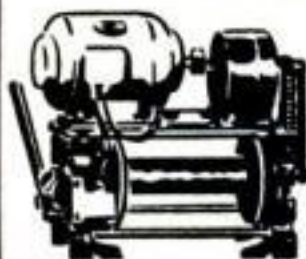
ALARM HORNS SIRENS

Heavy duty motor driven; high, med. or low tone, 110v. AC Weather-proof. For alarm or signal horn for boats, school yards, factories, air raids, etc. Lists at \$47. **NEW \$24.95**



POWER & HAND WINCHES AT FACTORY PRICES!

For—**BOATS, TRUCKS, FARMERS, LOGGERS, CONTRACTORS, ETC.**



Hand Winch, 3-1 ratio, 600 lb. pull, drum has 1 1/2" spool, 6" flange, takes 75' of 3/16" cable, stop locking pawl, wgt. 26 lbs. **\$16.95**

Ball Bearing Hand Winch, low ratio 1-1, high ratio 3-1, 600 lb. pull. **\$29.50**

Same as above with bronze worm gear, 12-1 ratio and hand-brake. **\$39.50**

1/2 HP electric ball bearing model; compact gear box, 12 rpm drum speed. **\$145.00**

3/4 HP, same as above, 3" drum. **\$165.00**

Heavy Duty, 10-1 ratio, double drum model with jaw type clutch, wgt. 280 lbs. **\$49.95**

CABLE, 1/4" preformed stainless steel aircraft, 100 ft. or less 17c/ft. Over 100 ft. **15c/ft.**

SEND TODAY **FREE CATALOG**

Pumps
Grinders

Hundreds of \$5 saving buys. These are a few of the many items at sensationally low prices!

Drop Cords
Generators

Fire Pumps
Saws

Clutches
Air Tanks

C&H ELECTRIC MACHINE Co. Inc.

438q W. Juneau Ave., Milwaukee 3, Wisconsin

WELD IT YOURSELF! IN A JIFFY!

**Weld, Cut, Braze, Solder
IRON, STEEL, BRONZE, BRASS,
ALUMINUM & OTHER METALS**

Tool and Equipment breakdowns are always annoying and costly. Don't let them bother you. Get a **Dynamic Arc Welder**. You can do expert work on your very first job. Welders operate from any properly wired 110 V. AC line. The handiest "tool" in your workshop. A **Dynamic Welder** will save its low cost over and over again in time and money.

**DYNAMIC INDUSTRIAL
type transformer Arc
Welder 75 amp output
for Industrial or Work-
shop use.**

**DYNAMIC
WELDER CO.**

Dept. D3-CD, 15 E. 23rd St.
Chicago 16, Ill.

Free Details and "How to Weld"

Everything YOU NEED

One low price gives you a complete welding outfit ready to use. Save Money! Buy direct! Sold on 10 day money back guarantee. Send today for **FREE** details.



STOP Faucet Leaks for years!

SNAP-in

SWIVEL WASHER

FEATURED IN READER'S DIGEST...



This amazing faucet washer lasts 10 to 20 times longer than ordinary washers. Patented swivel action allows washer to seat tightly without grinding—practically eliminates wear. Genuine Neoprene face disc. Snaps into faucet stem—no special tools needed. Ask your hardware dealer for Snap-in Swivel Washers. 3 for 69c. Accept no substitute. If dealer cannot supply, send 69c and bibb washer size to Snap Products Co., Division of Harrison Industries, 847 W. Harrison St., Chicago, Ill.

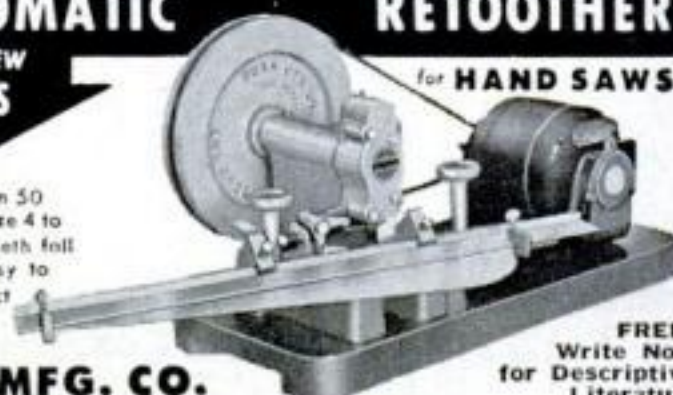
AUTOMATIC

MAKES NEW
PROFITS

RETOOTHER

for HAND SAWS

Cuts new teeth in 50 seconds—any size 4 to 16 points. Old teeth fall off as chips. Easy to operate. A perfect job



BURR MFG. CO.

8943-J VENICE BLVD. LOS ANGELES 34, CALIFORNIA

FREE!
Write Now
for Descriptive
Literature

NEW, IMPROVED CALCULATOR FOR WOODWORKERS only 25c

Instantly gives information on lumber, nails, concrete mixes, painting materials, etc. Convenient, simple to read. Just set dial for nail specifications, to convert linear to board feet, find bit sizes for screws, compare characteristics of woods. 6" diameter heavily varnished cardboard. Send 25c, no stamps, please to **Greenlee Tool Co.**, 2123 Columbia Avenue, Rockford, Illinois.



HOBBYISTS! SHOPMEN! Special ONLY \$54.50

PALMGREN "HOBB-E" Rotary, Index, Milling Table

Ideal for Model Parts or Shop Work

Mill-Grind-Drill-Index-Rout curved or straight-Rabbit and Mortise on drill press or lathe. 8" Table, 4" Cross Feed, 360° Rotation, Accurately Graduated. Bolts to table. Order NOW! **SAVE \$100. Only \$54.50. Less Rotary Feed \$39.75. Write for "HOBB-E" Tool Circular.**

CHICAGO TOOL and ENGINEERING CO.
8396 South Chicago Ave. Chicago 17, Ill.



The QUICK-WAY to SHARPEN CIRCULAR SAWS



The complete sharpener, featured in **FORTUNE** and other leading magazines. Anyone can use... guarantees precise grinding and spacing of teeth. Operates on your own power table. Complete with patented Index Plate, facing block for mitre and \$3.00 grinding wheel—no extras needed. Sharpens circular saws up to 12" diameter. Saves time and money. Send check, cash or money order. We pay postage.

Model 6-12P
\$16.50 Postpaid

QUICK-WAY Saw Company
13 Riverside
Corning, N.Y.

Impartial Road Tests Prove MIRACLE POWER—

- ★ Increases Compression 13%
- ★ Adds 56% to Spark Plug Life
- ★ Reduces Cylinder Bore Wear 49%
- ★ Cuts Oil Use 33%
- ★ Doubles Fuel Pump Life
- and Ring Wear 15%

You've heard many wild claims for lubrication aids. Now, get *facts*—*proof* about Miracle Power established by an independent laboratory of unimpeachable reputation, Wetmore Hodges & Associates.

They ran two new truck engines under identical conditions using Miracle Power in only one. When the other engine broke down, records scientifically compiled proved the Miracle Power engine which was still running had 13% more power, 56% longer spark plug life, 49% less cylinder bore and 15% less ring wear, used 33% less oil, and doubled fuel pump life!

Why this amazing performance? Because Miracle Power, a secret blend of super lubricating agents including colloidal synthetic graphite in suspension, protects engines.

Insist on Miracle Power in gas and oil—remember its *proven* results.



Stops DRY STARTING Damage... Treats the Engine, Not the Oil!

During stops, oil drains off vital engine parts and it takes up to five minutes to pump it back after starting. Meantime, dry metal grinds against dry metal. Result: wear... lost power... repairs.

Use Miracle Power to protect engines with a breathlike lubricating film. It is not a purge—not a detergent—not a "soup-up" chemical—it treats the engine, not the oil.



THE AP *Miracle Power Division*
PARTS CORPORATION
812 AP Building • Toledo 1, Ohio
Manufacturers of:
MUFFLERS • PIPES • MIRACLE POWER • dgf 123

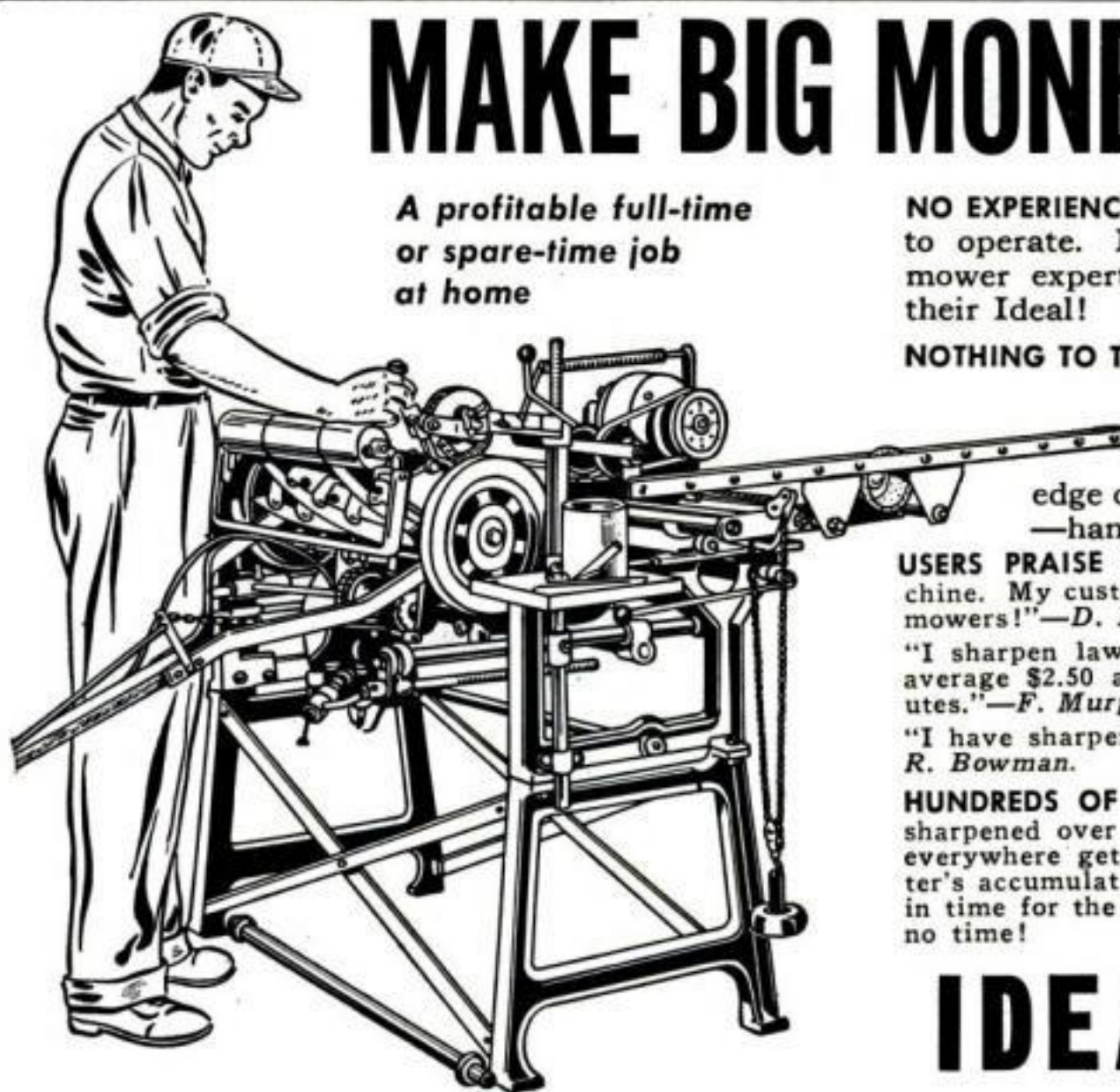
Lubricates *Right*... from the Start

Get Miracle Power (money back guarantee) at gas stations, garages and Ford, Kaiser-Frazer, Willys and other car dealers — 75c (\$1.00 in Canada)

© The AP Parts Corp., 1953

MAKE BIG MONEY GRINDING LAWNMOWERS

A profitable full-time or spare-time job at home



NO EXPERIENCE NEEDED—Simple to set up—easy to operate. Many have sharpened their first mower expertly just minutes after unpacking their Ideal!

NOTHING TO TAKE APART—No need to disassemble the mower if you use an Ideal. Put the whole mower in the machine to get a razor sharp edge on bed knife and reel of any mower—hand or power.

USERS PRAISE IT "I have only praise for your machine. My customers think I am a wizard at grinding mowers!"—D. Pemberton.

"I sharpen lawnmowers only in my spare time and average \$2.50 an hour. I sharpened one in 16 minutes."—F. Murphy.

"I have sharpened 229 mowers and made \$602.20."—R. Bowman.

HUNDREDS OF DULL MOWERS Ideal users have sharpened over a thousand mowers a year. Mowers everywhere get dull through normal use and a winter's accumulation of rust... Get your Ideal NOW in time for the Spring rush. It will pay for itself in no time!

IDEAL LAWNMOWER SHARPENER

Our 51st Year

For FREE Catalog Write to: **THE FATE-ROOT-HEATH CO., Dept. PS-3, Plymouth, Ohio**

MARCH 1953 291

How To Keep An Auger Bit "BITING"

Use an MT-10 INDIA® Auger Bit Stone, which is shaped to reach the edges of your smallest bits. Stone upper side of cutting edges, maintaining original bevel angle. Then stone lower side of bevel only enough to remove any burr. Finally stone spurs which score wood in advance of cutting edges. Work on inside of bit only. INDIA Auger Bit Stones are priced at \$1.00 at better hardware stores or direct.

HAVE A "SHARP" WORKSHOP

Get more fun out of working with sharper tools. This 32-page "How to Sharpen" book, illustrated, only 10c. Send to Behr-Manning Corp., Troy, N. Y., Dept. PS-3.



BEHR-MANNING
CORPORATION

division of NORTON Company

Coated Abrasives • Sharpening Stones • Masking Tapes

MORE POWER AND ECONOMY

SAVE \$\$\$ Eliminate costly motor overhaul and ring jobs. Save on oil and gas too. YOU can do the job in ten minutes. Just squeeze FISHER'S Compression Seal into your cylinders and this amazing new self-expanding mineral compound will actually fill the worn spots between your cylinder walls and pistons. No more piston slap and noisy engines. Makes your car perform like new up to 15,000 more miles.

CARS • TRUCKS • TRACTORS Makes any gas engine run like NEW. Increases compression up to 126%! Here is what happy users say:



A.F.C., Oklahoma City, "My 1947 Kaiser runs like a 1952!"

B.C., Beaverton, Oregon, "Even uphill I now have power to spare."

100% GUARANTEE You can't lose! Lab tests backed by a \$100,000 insurance policy guarantee FISHER'S Compression Seal cannot harm the finest engine. Your money back if after you try it you are not completely satisfied.



For Limited Time Only! As a special introductory offer you receive as a gift a professional spark plug kit. Clean and reset your plugs while you have them out. Makes your car run smoother. ONLY **\$3.95** POSTPAID

DEALER INQUIRIES INVITED



BEFORE



EASY
APPLICATION



AFTER-
SMOOTH
POWER

MAIL THIS COUPON TODAY!



CAR-LIFE SUPPLY COMPANY Dept. PS-3
4756 S. Central Ave., Los Angeles 11, Calif.
I enclose \$3.95. Please rush me a tube of FISHER'S Compression Seal and my FREE spark plug kit. I may keep the kit even if I decide to return the tube after use.

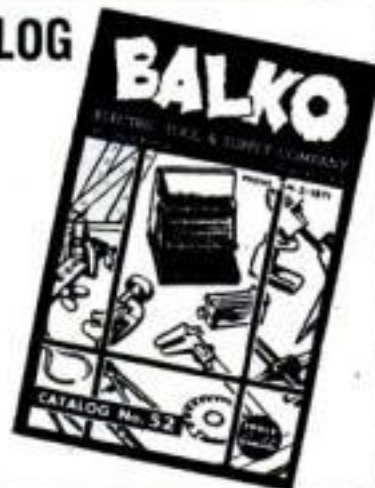
Name
Address
City Zone State

BALKO'S NEW SHOP CATALOG

Make Balko's new 1953 Power Tool Catalog your complete guide for best nationally known brands... Atlas, Delta, Logan, Porter-Cable, Shopsmith and others. Whether you need a pillow block, a belt, pulley or a 12" metal working lathe, we have it... prompt delivery. Send for this new catalog now while supply lasts. There's no book like it anywhere.

Send 10c in Stamps
to Cover Postage and Handling

BALKO TOOL & SUPPLY CO.
2305 Devon Ave., Chicago 45, Illinois



NEW... LOW PRICE Alcohol Blow Torch

One filling throws an 1800° flame a full hour. No priming or pumping, just fill with denatured alcohol and light. Nickel plated on brass. Safe and convenient. Complete instructions included. \$2.50 ppd.



GLUE INJECTOR COMPLETE WITH DRILL

Drill in handle makes a tiny hole to heart of joint—plunger forces glue through hollow tip and hole into and around joint under great pressure. Mends furniture and toys quickly without disassembly. Model Worker's dream. Satisfaction guaranteed. Sorry, no C.O.D.'s. ppd. \$1.65

Arcraft Products Co., Box 876T, Cleveland 22, Ohio



ELECTRIC WELDER AC or DC 110 Volts

The "Little Marvel" all-metal welder, 5-year written guarantee, and flame torch welds 1/8" metal — brazes up to 1/2" or money back. Also solders and cuts, \$10.40 plus 50c postage. "Little Marvel" without flame torch \$6.45. On C.O.D. postage extra. 1/4" Heavy Duty transformer welder \$18.95 F.O.B. All welders complete with everything — ready to plug in.

ESSAY MFG. CO., Dept. 47, Quincy 69, Mass.

\$6.45
Com-
plete

How to cut glass



FREE

Simple instructions make glass cutting sure and easy. Free book tells how, shows in pictures. Limited printing. Free copy is yours if you write now. Send handy coupon today!

MAIL THIS HANDY COUPON RIGHT AWAY

Red Devil Tools, Irvington 11, N. J.
Please send free copy of Booklet HT-133

NAME
ADDRESS
CITY STATE

LEJAY WAR SURPLUS AT CARLOT PRICES

HYDRAULIC EQUIPMENT



No. 6—Double Action Cylinder 1½" bore, 26" stroke, 1" shaft. Lifting capacity 1760 lbs. with 1000 P.S.I. input. Overall length 35". Bolt mount at bottom, clevis at top. \$55.00 Value—now only..... **\$15.95**

No. 2—(As Illustrated) Double Action cylinder 4" bore, 18" stroke, 1½" shaft, lifting capacity 12,500 lbs. with 1000 P.S.I. input. Overall length 30½". Clevis mounting at bottom, threaded shaft at top. Cost Gov't. over \$29.75 \$300.00—Special.. **\$29.75**



No. HP4—Hand Pump with handle. Built in check valve—Capacity 2000 lbs. Pressure, \$55.00 Value... **\$11.25**



No. 211—Pesco Type pump for oil, water, air, 1" pipe thread ports. Splined self-aligning **\$15.25**

ORDER FROM THIS AD

WELDER SPECIAL \$39.95

Kit Form Easily Assembled Use Your Own Generator



Powerful 200 ampere machine includes special mounting base and all equipment necessary for welder.

AW5 Kit—Complete **\$39.95**

as above..... **\$77.90**

Same Kit including Generator and Arc Stabilizer



ACCESSORY KIT BARGAIN
EXTRA! A \$17.20 Accessory Kit Complete for only \$15.95! Includes Welding Helmet, Electrode Holder, 5 lbs. Ass't. Rods, Two 10 ft. Welding Leads with terminals and ground clip, plus Audel's Welding Guide. Sold with any Welder Kit... **\$15.95**
Special Price.....

MONEY BACK GUARANTEE—Send Check or Money Order—or small deposit and we will ship C.O.D. Catalog of additional Surplus Bargains, Sent FREE.

LEJAY MANUFACTURING CO., INC.

723 LEJAY BLDG., MINNEAPOLIS 8, MINN.

928 1st AVE. SO., C23, SEATTLE 4, WASH.

TEACH YOURSELF! BOOK BARGAINS (Postpaid)



Used by Armed Forces Institute in World War II.

1. **Electricity for Beginners.** Learn the electrical trade with this simple, well illustrated book. Over 400 pages of concise, clearly written information. Electricians earn big money. Complete **99c**

2. **Machine Tool Operation.** Learn a high pay trade. Complete data on machine work of all kinds. Learn to be an expert machinist. Detailed and simple to understand. Over 500 illustrations and examples..... **99c**

3. **Basic Mathematics.** Essentials of mathematics and arithmetic in simple form. This basic course essential as foundation for all trades. Simple review of arithmetic and mathematics in 1 concise book. Easily understood..... **99c**

4. **Mathematics Essential to Electricity and Radio.** This course applies mathematics directly to electricity, radio. Practical and detailed with over 1,000 workable examples and illustrations..... **99c**

5. **The Small Business.** Detailed and valuable information on how to set up your own business. Full of illustrations and general information on all types of small businesses. Easily understood and applied. Only..... **99c**

SPECIAL—Order all 5 above books ppd..... \$3.99

UP TO 2000 POWER! MICROSCOPES... OPTICS



FROM \$14.95 OPTICS FROM \$1.00

UNHEARD OF VALUES IN PROFESSIONAL QUALITY OPTICAL INSTRUMENTS...

These fine instruments are used throughout the U.S. in laboratories, schools, colleges and physicians' offices

SEND FOR FREE 32 PAGE CATALOG

World's greatest values in hobbyists, students, and professional research microscopes, complete accessories, mechanical stages, eyepieces, prepared slides, dissecting microscopes, ore, mineral, gem microscopes, binoculars, telescopes, magnifying glasses of all types. Each item a bargain... money-back guarantee.



THE AKRON 4400 SUNSET BLVD. LOS ANGELES 27, CALIF.

3-PS

Buy U. S. Defense Bonds



Send for this **BIG NEW** Hunt's **WOODWORKERS CATALOG NO. 19**

NEW LOW PRICES

Offers greatest selection of fine domestic and imported woods—and hundreds of woodworkers items at bargain prices!

You'll save time and money with this big, new catalog. Contains everything wood craftsman needs. Shows 32 rare and fancy woods in color...43 veneer designs...275 scroll patterns...multicolor inlays, overlays, bandings...all kinds of tools, machinery, cabinet hardware, ornaments, mouldings...and pages of valuable tips, ideas, information, instruction. Send for your copy NOW. Only 15c—refundable on your first order.

ONLY 15c

144 PAGES QUICK DELIVERY

on maple, poplar, oak, mahogany, red cedar, cherry, walnut, and many others—all properly seasoned and kiln dried.

MAIL THIS COUPON—TODAY!

CRAFTSMAN WOOD SERVICE CO.

2729 S. Mary St., Dept. B3

Chicago 8, Illinois

Send me the big, new, money-saving Catalog No. 19. Enclosed is 15c—refundable on my first order.

Name.....

Address.....

City..... Zone..... State.....

GRAVELY makes tough jobs **EASY!**

Powerful!

5-HP Gravelly Tractor powers 21 tools—does every lawn, garden, and field job easier, better! All-gear drive, Reverse. New "Power vs Drudgery" Booklet FREE.

Write for it today!



GRAVELY

BOX 384 DUNBAR, W.VA.

FIELD-TESTED FOR 32 YEARS

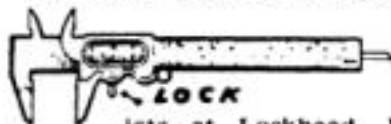
WAR SURPLUS AND OTHER BARGAINS SAVE UP TO 90%

LOW VOLTAGE CIRCUIT TESTER

Made for U. S. Ordnance Dept. to rigid specification. Portable steel hand-carrying unit is a self-contained trouble shooting device for making a complete and rapid check of the generator battery circuit, incl. any circuit & voltage regulators. Battery voltage, regulators, cut-out settings & generator performance easily determined. It's great for garages, mechanics, truck fleet owners, boat and marine mechanics. Can be used on any 6 or 12 volt system. Approx. Govt. cost \$175. NEW. Complete with instruction book, only **\$32.50**. Shpg. Wt. 20 lbs.



"HELIOS" ORIGINAL TOOLMAKERS VERNIER CALIPERS



ULTRA PRECISION—Imported for the really critical mechanic who must have the best. Recommended and used by experimental and research machinists at Lockheed, Douglas, Bendix, GM, RCA, GE. ALL NEW and at low, low prices... but quantity is limited! Model 51-Genuine Helios. Hardened lapped precision surfaces. 1/1000" and 1/10 mm graduations. Has handy slide roll and thumb lock. Quick, accurate depth. A \$35 value. It's yours complete with leather carrying case for just **\$6.95**.

MICROMETERS



Chrome plated, precision engineered, carefully tooled to give long life. All new 0-1" capacity—**\$2.25** ea., 1-2" capacity—**\$3.50**.



RIVET SETS Universal type, case hardened tips. Set of dies will head up only brazier or round head rivet from 1-1/6" to 1/4". With adapters for air gun or hand use. All new—cost Govt. approx. \$27.00. Complete 15 piece set (wt. 2 lbs.)—**\$5.00**.



RIGHT ANGLE ACTUATOR

Has worm gear drive in 6 to 1 ratio. Thrust shaft and 9/16" dia. and travels 12", forward or reverse on Acme Worm Thread. Drive shafts on either side of housing are 3/8" dia. with 16 splines. Overall length 25", width 4". Ideal for pushing, pulling or lifting. Sealed, self-lubricating chamber. Shpg. Wt. 5 lbs. Govt. Cost \$150. NEW—**\$4.95** ea.

SEND 25c for BIG • NEW • 1953 CATALOG

Bargains for everyone. Check. Money Order or Cash. 25% deposit on C.O.D. orders. Prices F.O.B. Culver City, Calif., unless otherwise stated.

AIRBORNE SALES CO., INC., Dept. PS 353
8501 Stellar Dr. Culver City, Cal.

EASY TIME PAY PLAN

What?
POWER TOOLS
only **\$16 EACH!**

GRINDER

SANDER

30" LATHE

18" TILTING TABLE SAW

HORIZONTAL DRILL PRESS

5 POWER TOOLS IN ONE

FACTORY TO YOU \$79.95

SUPERSHOP offers you a precision-built complete power tool workshop. 100% ball bearing. RUGGED. Accurate. Big capacity. 15 day FREE trial. Money back guarantee. Mail postcard for FREE catalog. Buy on easy pay plan.

POWER TOOLS, INC.

245 Yates Ave.
Beloit, Wisc.

VERTICAL DRILL PRESS

AUTOMATIC COMPRESSOR UNIT

WITH 22 GALLON TANK

1/2 H.P. heavy duty capacitor motor. 110 volt A.C., compressor 2" bore 1 1/4" stroke, piston type, splash feed lubrication. 14" x 32" tank automatic pressure switch. CFM 2.8 at 100 lb. pressure. Check valve, safety valve air regulator with gauge and filter. 20 ft. air hose with air chuck for inflating tires. V. belt drive. Ball bearing wheels, with 2" x 8" rubber tires. Portable with handle. Shipping weight 150 lbs.



With 1/2 h.p. motor

Reg. price \$175

\$98.50

With 1 1/2 h.p. gas engine

Reg. price \$200

\$124.50

Regulator, gauge and filter. Sold separately. Price for the 3 items**\$8.95**

Send check or money order. Money back guarantee. Send for **FREE CATALOG** of Light Plants, Air Compressors and home workshop equipment

WELLWORTH TRADING CO.

1832 S. WABASH AVE., Dept. B-353, Chicago 16, Ill.

DO MORE PLANING JOBS WITH LOW-COST BELSAW **\$215.00**



AMAZING 12 1/4-IN. PLANER Does All Ordinary Planing Mill Jobs. Provides attachments for Jointing, Rabbeting, Tongue, Groove, Matching. 12 1/4 x 6-in. capacity, 3-knife solid round all-steel cutterhead. Power feeds at 24 feet per minute, 42 cuts per inch. Provides for full line of accessory attachments—Grind and Joint knives IN THE CUTTERHEAD WITHOUT REMOVING.

BELSAW MACHINERY CO

1022 Field Bldg., 315 Westport Rd., Kansas City 11, Mo.

FREE BOOK

VARIABLE SPEED HYDRAULIC POWER TRANSMISSION

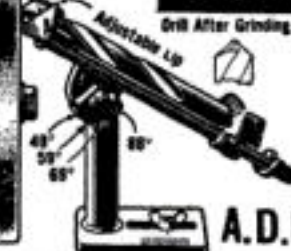


It has Infinite Speeds 0 to 550 Reverse Automatic Overload Protection. Adjustable Torque up to 180 inch pounds. 5/8" Input and Output Shafts. It will handle 1/4 to 1 1/2 H.P. Motor. Case measures 7 1/2" long 7" high 6 1/2" wide. VALUE OVER \$300. Shipping Wt. 25#. On C.O.D. Orders we require a 10% Deposit. **only \$54.50**

Feb. Chicago

DIRZIUS MACHINE SHOP "X" 1423-25 So. 52nd Ave., Cicero 50, Ill.

SUPER DRILL GRINDER



Sharpens round shank drills from 3/32" to 1/2" in diameter, up to 6" long. Grinds old drills like new in 4 different point angles, using hand or power grinding wheels. **\$2.95** Money-back guarantee, only

At Dealers or Postpaid

A.D. McBURNEY 317 E. 4th St., Dept. S-27
Los Angeles 13, California

Convert Hand Mowers to Power Mowers

Takes Less Than 3 Hours

The Handy-Dandy Lawn Mower Kit fits any hand mower from the 16 to the 20 inch size. Complete with all necessary parts. Kits can be purchased separately, complete with engines or complete with Pennsylvania mower.

Also manufacturers of complete power mowers and garden cultivators, both reel and whirl type power mowers, with Leaf Mulcher and Snow Sweep.

LE CLAIRE MFG. CO., Dept. PS, Le Claire, Iowa



Worth its weight in **GOLD**

LIFETIME OIL FILTER GUARANTEES:



- ✓ 10,000 Miles Without Changing Oil!
- ✓ 200,000 Miles Without Changing Filter!

The sensational Filterall "Lifetime" oil filter is so designed that all your oil is forced through a porous bronze element that never wears out. Recently perfected for the U. S. Air Force, it filters out dirt particles as small as 39 millionths of an inch, insuring a contin-

uous flow of clean, grit-free oil, regardless of engine temperature. "Lifetime" allows no loss or bypass and does not rob your oil of valuable protective additives... even saves you the quart usually soaked up by old type filter packs. Your "Lifetime" high-efficiency filter will pay for itself over and over by saving oil, engine repair and the

expense of "old fashioned" filter element replacements. Easy installation for all cars and light trucks—can be transferred to your new car when you trade. To clean, just rinse the bronze cartridge in gasoline. Order your "Lifetime" filter by mail today. Please specify on all orders make, year and model of your car and make of old filter, if any. Postpaid (or send \$2.00 deposit; balance C.O.D.)

Dealer inquiries invited

ENGINE PRODUCTS MFG. CO.

DEPT. AX-3, 5801 E. BEVERLY BLVD., LOS ANGELES 22, CALIF.



**FULL 10
YEAR
Guarantee!**



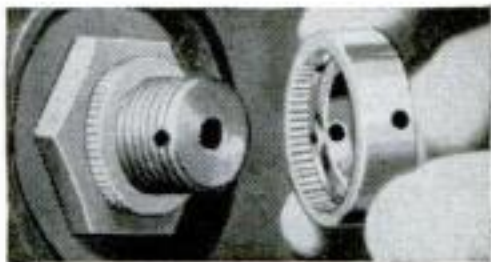
"Lifetime" Complete Filter Unit for all cars except those few using full flow type 12⁹⁵

"Lifetime" Kit for converting your present filter to permanent unit. 6⁹⁵

"Lifetime" Full-Flow type (for foreign cars, some Chrysler models, etc.) Complete heavy duty Model including case . . 19⁹⁵

10,000 Extra Miles From Your Tires!

- Eliminate balancing & aligning wheels
- Save wear on brakes & bearings
- Get easier, safer steering



Called the "greatest advance in wheel engineering in 20 years," this amazing "Educated Nut" makes front wheel bearing adjustment 9 times more accurate. Here's why: conventional slotted wheel bearing nuts must be backed off from correct position until (by trial and error) cotter pin fits in one of six slots, causing as much as $\frac{3}{8}$ " tire tread wobble, resulting in "cupping" and excessive wear on tires, brakes, bearings. The "Educated Nut" locks bearings in precision adjustment (Motorsport magazine reported .001" accuracy!) with ingenious 84-point micro-metric head. Fool proof and simple to install; can save you literally hundreds of dollars (fleet owner reports saving over 85% of former \$5000 maintenance cost). Nearly $\frac{1}{4}$ million now in use.



10-Day FREE Trial Offer

Send us your name and address, make & year of car plus only \$2.98 cash, check or money order and we'll send you a set of "Educated Nuts" postpaid (or send us only \$1.00 C.O.D. Deposit, pay postman balance plus postal charges). Try for 10 days on your car. If "Educated Nuts" don't do all we say they do, send them back for full refund. No obligation, no questions asked. Write today!

MEHREN INDUSTRIES

Suite ES-3, Mehren Bldg. Beverly Hills, Calif.

Increase "gas" mileage!

**10 DAY
FREE TRIAL
IN YOUR CAR**

- TEST FOR
- ✓ BETTER MILEAGE
 - ✓ BETTER IDLING
 - ✓ FASTER PICKUP

**PAY ONLY IF
SATISFIED!**



Did you know that your engine actually uses a **richer** gasoline mixture when you take your foot off the gas pedal than when you step on it? When your engine slows down or idles, higher manifold vacuum sucks a far richer mixture through the carburetor than needed even for fast driving. At last, engineers designed the Gane Air-Flow needle to bleed air during high manifold vacuum periods and thus try to increase gas mileage. Does it work? Of the more than $\frac{1}{2}$ million users, some report up to 25% more mileage, faster pickup, smoother idling. But some swear at them, say: "no improvement" and fire the "little stinkers" back to us—proving Ganes sometime fall. That's why we invite you to TRY BEFORE YOU BUY.

**SEND NO MONEY! MAKE NO DEPOSIT!
PAY POSTMAN NOTHING!**

Just send us your name and address plus make, year & number of cylinders of your car & carburetor make (if you happen to know). Install easily in a few minutes, then check your mileage for 10 days. If you average 2 or more extra miles per gallon, send us 1.50 per needle. If you don't, send them back & owe nothing. Write:

NATIONAL AUTO RETAIL DIV.
Dept. GS-3, 9909 Santa Monica Blvd.,
Beverly Hills, Calif.

Schupack's AMAZING TOOL BARGAINS! ALL BRAND NEW MERCHANDISE

112 PIECE ASSORTMENT \$3.95
FOR ELECTRIC GRINDER
\$10.00 VALUE — ONLY
Post-paid

Here's what you get! Mounted Stones on 1/8" mandrel, Drum Sander, Sanding Sleeves for sander, Rotary Cutters, Wire Scratch Brush, Bristle Brushes, Circular Saw, Buffing Wheel, Grinding Wheel, Rubber Polishing Wheel, Cut-off Wheels, Rubber Cylinder, Mandrels to fit above tool, asst'd Sanding Discs, Sharpening Stone, etc.



18 ROTARY CUTTERS \$5.85
Value \$13.50
Post-paid

Illustrated 1/2" actual size




Assorted disc cutter on 1/8" or 3/32" shank. Will fit all hand grinders. Ideal for cutting wood, metal, or plastic. Brand new.

12 MINIATURE CUTTERS \$1.00
FOR CUTTING WOOD, PLASTIC, or METAL
Post-paid



Actual size. Ass't shapes on 3/32" shank. For die makers, home workshop, etc.

7 HIGH SPEED TWIST DRILLS \$1.00
15 DRILLS FOR ONLY \$2.00! Order Today!
Post-paid



7 Popular Sizes—up to 1/4" Brand new. Ideal for home or shop use. Fits all standard chucks.

5 DRILLS FROM 1/4" to 1/2" DIAMETER—\$1.95

SURPRISE VALUE 100 Pieces \$1.00
FOR ELECTRIC GRINDERS
Post-paid



Grinding Wheels, Cut-off Wheels, Sanding Discs, Mounted Stones, Sharpening and Honing Stones, Rotary Cutting Burs, Abrasive Cartridges, Mandrels, and many other items.

HEAVY DUTY FLEXIBLE SHAFT WOODWORKERS' DRILLS
A SENSATIONAL \$2.00 VALUE AT P.P. U.S.A.

4 drills, from 5/16" to 1/2" with 1/4" shanks. Brand new, popular sizes.



Overloading impossible with new "Slip Clutch" power shaft. Overload stops rotation automatically, with warning "click". No damage or wear on cable. Sturdy ball bearing handpiece. Motor end takes 1/2" shaft. Adapter for 5/8" or 3/4" shaft. \$1.30.

1953 Illustrated Catalog 10c

FLEXIBLE SHAFT — ONLY \$4.95
Post-paid



Fits all electric drills & hand power tools. 35 3/4" long. Oilite bearing. Core of specially wound, high carbon steel wire in flexible steel casing. Will accommodate tool shafts up to 1/8" dia. For lathes, electric drills, etc.

2 DRUM SANDERS \$1.50
Post-paid



With 12 Bands in Assorted Grits. 1/2" dia. x 1" long on 1/8" arbor with 12 bands

ONE DRUM, 1" DIA. x 1" LONG ON 1/4" ARBOR WITH 6 EXTRA SLEEVES \$1.00
Post-paid

12 MOUNTED WHEELS \$2.95
Post-paid



and points on 1/8" Mandrel. For grinding on plastic, wood soft and hard metals. Regular \$8.40 List Val. 12 wheels on 1/4" Mandrel \$3.60

18 MOUNTED POINTS ON 3/32" MANDREL \$2.50


18 GRINDING WHEELS \$1.00
Post-paid



and rubber polishing wheels, up to 1" dia. For grinding & polishing metals, plastic, wood. With one 3/32" mandrel.

10 CUT-OFF WHEELS 1 1/4" DIA. WITH 1/8" MANDREL \$1.00

20 ABRASIVE ROLLS, cloth, and 1/8" mandrel \$1.00
Post-paid




for grinding, sanding, deburring metal, plastic, wood or rubber. ONLY...

ADAPTER CHUCK \$1.50
Post-paid



With 2 interchangeable collets, opening from 3/32" to 1/2" on 1/8" mandrel. Price each only.

2 CIRCULAR SAWS \$1.50
ON 2 MANDRELS — ALL AT ONE LOW PRICE
Post-paid



1" diameter saws on 1/8" Mandrels. For cutting wood, plastic, or soft metals. Order at once! Send Check or Money Order.

SCHUPACK SUPPLY CO., 7331 COTTAGE GROVE AVE., DEPT. PS-3, CHICAGO 19, ILL. SEND CHECKS OR M. O. NO COD'S PLEASE

The easy way to paint!

Speedy Sprayer



ONLY \$32.50 LESS MOTOR

Favorite of home owners and craftsmen for 20 years! SPEEDY SPRAYER gives your work that professional paint finish everyone admires. Sprays paint, enamel, varnish, lacquer, etc. . . . 4 to 7 times faster than hand brushing! Lightweight, portable, uses any 1/4 H.P. motor. Improved diaphragm principle assures clean, oil-free air. You'll find dozens of time and money saving uses for SPEEDY SPRAYER, including spraying insecticides 2-4-D and DDT. Complete outfit, without motor, only \$32.50.

At leading hardware, lumber, and auto supply dealers. FREE—write for handy booklet "How to Spray."

W. R. BROWN CORPORATION
2637 N. Normandy Ave. • Chicago 39, Ill.

STOP PIPE LEAKS



STOP LEAKS SMOOTH-ON No. 1 IRON CEMENT

with Smooth-On No. 1 Iron Cement. For over 50 years a home repair stand-by for stopping steam, water, oil and gas leaks in boilers, furnaces, tanks, stoves, etc. and for tightening loose parts. Get a 1 3/4 oz., 7 oz., 1 lb. or larger size at your hardware store and keep it handy.

FREE 40-PAGE REPAIR HANDBOOK

Shows many useful repairs you can easily make around the house and on the car. 170 pictures. Write NOW for free copy.

SMOOTH-ON MFG. CO., DEPT. 58C
570 Communipaw Ave., Jersey City 4, N.J.



Do it with SMOOTH-ON
THE IRON CEMENT OF MANY USES

This One



UEQN-W1P-E5RS

RADIO BARGAINS

RADIO MIX

Ideal for 'ham' operators, experimenting, etc. Mix contains: Headset, mike, button, trans. wire, insulators, switches, condensers, rheostats, terminals, jump cable, etc. 8 packed lbs. **249**

RADIO ANTENNA REEL

For tuning beam antenna, opening and closing doors, etc. Powered by 1/8 HP, 24V, GE motor, engaged to a gear reduction only when electrical contact is made. Operates in either direction. Ideal for an auxiliary power take-off. Has 150 RPM at take-off.

NEW 875 USED 675

AIRCRAFT CABLE

Rust resistant, alloyed steel. Extra flexible. Pre-formed, 7 x 19 strand. On reels

1/16" - 4 1/2 ft. (7x7)	7/32" - 11 1/2 ft.
5/64" - 5 ft. (6x7)	1/4" - 12 1/2 ft.
3/32" - 5 1/2 ft. (7x7)	9/32" - 15 ft.
1/8" - 7 1/2 ft. (7x7)	5/16" - 16 1/2 ft.
5/32" - 8 1/2 ft. (7x7)	3/8" - 18 ft.
3/16" - 10 1/2 ft. (7x7)	1/2" - 20 ft.

Stainless Steel Cable - Pre-Formed
1/16" - 7 1/2 ft. | 5/32" - 20 ft.
1/8" - 18 ft. | 3/16" - 23 ft.

Brass Cable - Not Pre-Formed
1/16" - 5 ft. | 5/16" - 23 ft.
1/4" - 17 ft. | 1/2" - 34 ft.

CABLE ASSEMBLIES

Originally made for aircraft controls. Equipped with integral fittings at both ends. Rust-proof, 7 x 19 strand.

1/16" x 28 ft. with turnbuckle ends
Two lengths for Only... **159**

3/16" x 8 ft. with threaded stud at one end & eyelet on other, 3 lgths. **159**

3/16" x 18 ft. with turnbuckle ends.
Two lengths for Only... **189**

3/32" x 49 ft. Made of 2 lgths. of 17 ft., with turnbuckle ends, and 2 lgths. of 3 ft. with 1 turnbuckle and 1 clevis end. One complete length Only **198**

NYLON ROPE

5/8" diameter, 16 strand. Easy to handle. Extra strong. Long lasting. A bargain at... **214 PER FT.**

NYLON SHROUD LINE (Parachute)
Approx. 1/8" in dia. **295**

TEN - 15 ft lengths.

PRESSURE TANKS

G-1 Type - Stainless Steel, shatterproof & rustless. Has reinforcing ribs and is pressure tested up to 400 PSI. Has high safety factor. Both ends have 1/4" pipe ports.

Ideal for use as a buoy, drinking water supply, underwater fishing, diving, painting, cooking, or spraying.

G-1 - 12 1/2" x 24" ONLY **1095**
D-2 Tank - 500 cu. in. cap. **395**
A-4 Tank - 104 cu. in. cap. **195**



HIGH PRESSURE BOTTLES

Tested to capacities of 3000 PSI. Ideal spraying, welding, inflating, etc. For use with AIR or GAS.

H-1A - 2-7/16" dia., 10" long. **229**
H-5 - 3-1/4" dia., 19" long. **395**
H-7 - 5" diameter, 19" long. **395**

SAVE UP TO 85% ON WAR SURPLUS

FROM WORLD FAMOUS 'GADGETEER'S' HEAVEN

TREMENDOUS SAVINGS ON PALLEY HYDRAULICS

Here at Palley's we carry the WORLD'S LARGEST supply of special Hydraulic Equipment. Our huge stocks of Hydraulic Cylinders alone feature over 20,000 units in 61 sizes and types. We also stock thousands of accessories such as Hydraulic Pumps, Transmissions, Valves, Tanks, Fittings, Hose, etc.

HYDRAULIC CYLINDERS

No. 3 - Double Action Cylinder
Bore is 1", Shaft 1/2", Stroke adjusts from 2-1/2" to 4" with internal sleeve stops. Length overall 8-1/2". Will take 1500 lbs. continuous - 3000 lbs. intermittent. Will lift or push 1100 lbs. **575**

No. 42 - Double Action Cylinder.
Bore is 3-1/4", Shaft 1-1/8", Stroke 9-1/8". Length 17-1/2". Lift capacity with 1500 PSI line pressure approx. 12441 lbs. **1875**

No. 4 - Double Action Cylinder. Bore 3", Shaft 1-1/8", Stroke 3-1/2". Length 8 1/4". Lift capacity with 1500 PSI line pressure 10500 lbs. **1875**

No. 53 - Double Action Cylinder. Bore is 2-3/8", shaft 1 1/4", stroke 1 1/2", length 26". Gives 6645 lbs. lift with 1500 lbs. line pressure. **2050**

No. 29 - Double Action Cylinder Special
Gives 20,000 lbs. lift with 1500 PSI line pressure, or will give 40,000 lbs. thrust on intermittent 3000 lbs. line pressure. Has 4" bore, 1-1/2" dia. piston shaft. 18" stroke, 30-1/2" length. Ideal for presses, road, farm and shop equipment. Cost Gov't \$390. **2995**

BENDIX HYDRAULIC PUMP AND MOTOR

Has 3 1/2 GPM capacity at 600 PSI. Motor is 1 1/2 HP, 24V, DC. Operates on either 12 or 32V, DC current. Has built-in relief valve adjustable to 1500 PSI. This unit ideal for bait tanks, hyd. lifts, portable loaders, etc. Cost Gov't approximately \$350.00. **1395**

VICKERS HYDRAULIC TRANSMISSION

Self contained, 2 H.P., constant torque at all speeds with variable volume reversible, piston pump (controlled by outside lever) supplying piston hydraulic motor. Automatic pressure, dash pot for smooth control. Power output RPM -0 to 1/3 input RPM in both directions. Input RPM 1800 continuous, 4000 intermittent. Dash pot can be removed for greater RPM. Ideal for lathes, duplicator set-up of mills, conveyors, small cars, drives, gearings, etc. **4000**

4" SPLINE SHAFTS for input & power take-off... **250 PR**

Pulley Adapters - Bearing Block. Set \$20.00



COMPLETE UNIT

MAKE YOUR OWN POWER UNIT

Here's a unit PACKED WITH BRUTE FORCE! Does all those hard, heavy jobs that ordinary Power Tools cannot handle. Easily made from a vacuum cleaner type motor, a gear reduction drive and a few homemade parts. Can be used for turning large nuts & bolts, digging post holes, drilling large holes in wood or metal, driving power tools, & machinery, lifting, pulling, pushing, or any job where a slow speed with high take-off is required. YOU CAN'T STALL IT! Lightweight, easy to handle. Has 1000's of uses in the home, garage, shop, factory. We supply complete instructions

MOTOR 325

GEAR BOX NEW 1295 USED 675

P-1A Pesca Gear Type Pump

Capacity, 1 1/4 GPM at 1500 RPM at 1500 PSI. Pressure limit is 1500 PSI continuous, with intermittent maximum of 1875 PSI for 15 seconds. Normal operating speed is 3750 RPM with an intermittent maximum speed of 4500 RPM. Rotates right-hand only. **Now 895**

V-15 - 4-Way Control Valve
Poppet type. Pressure balanced. Positive shut-off at neutral position. Has dual control handles. An ideal valve for use with single or double acting hydraulic cylinders or in a multi-service system. Can be used in combination with other valves to produce accurate, selective control systems. Parts are 3/8" AC tube size (9/16"-20 thread). **675**

No. V-4AB MANUAL CHECK VALVE
Can Piston type. Permits free flow in one direction while checking any 'back flow' until control handle has been positioned to allow free flow in both directions. Has 1/4" tube size ports (7/16"-20 thread) **225**

Send 25c Today for illustrated Catalog of thousands more Hydraulic Bargains.

CUNO OIL FILTER

An aircraft type oil filter which can easily be adapted to autos, etc. Will keep oil clean without a cartridge replacement. Can be installed in minutes. Has two mounting braces. Lge Size, 3/8" std pipe ports. A real SURPLUS BARGAIN. **695**

HYDRAULIC POWER UNIT

Complete hydraulic pumping unit. All necessary parts assembled & ready to work at a great saving in time and cost to you. Delivers 3-1/2 GPM at 1500 PSI. (other volumes and pressures can be obtained by simple adaptations) Unit consists of a gear pump driven by a 2 1/2 HP, DC motor (4000 rpm max.), relief valve, pressure unloading switch, filter, accumulator, reservoir with sight gauge & complete plumbing. Mounted on 19" x 25" aluminum panel. Complete with 24V-DC motor. (Other motors of any current can be adapted) **4995**

230 PAGE CATALOG

1000's of ITEMS! Fully ILLUSTRATED! For the MECHANIC, SPORTSMAN, HOBBYIST, HOME OWNER, etc. War Surplus - Factory Closeouts and General Merchandise Values! Save on Hardware, Hand & Power Tools, Gadgets, Sports Equipment, Hydraulics, etc. SEND 25c for HANDLING & MAILING.

RIGHT ANGLE SPINDLE DRIVE GEAR BOX

Has 18-3/4" stroke at 1 to 1 ratio. 7/8" input and take-off shafts may be shortened if desired. Input shaft has universal joint. Has a threaded mount stud with tapered roller bearing adaptable to swivel mount. **795**

3 SPEED TRANSMISSION

Converts a high speed, low power input into low speed, high power take-off. Has 2 take-off shafts at 4 to 1 and 16 to 1 ratios. Gear box has a worm drive, bronze gears and a throw-out clutch. Will operate in either forward or reverse directions. Adaptable to many uses on power machinery. **1995**

90° TRANSMISSION

Has 1 1/2 to 1 gear reduction through bevel gears. Pre-lubricated bearings in dust proof housing. - A Positive lever control clutch. Size: 7" x 6". - 3/4" take-off shaft **395**

ELECTRIC ACTUATOR

Fast Linear Actuator - Has hundreds of uses for any mechanical device needing controlled two way action. Will open, close, raise or lower doors, windows, gates, etc. Has 8500 RPM, 1/8 HP series wound motor. Operates on 24 V, DC current. Gives 4-1/2" stroke in 13 1/2 secs. Compression and tension loads up to 750 lbs. Has adjustable micro switch for limits of travel. The lgth. retracted is 11 inches. **795**

GEAR HEAD MOTORS

Heavy duty, G.E. motor, 2 HP, 24V, DC, 125 amp., reversible motor to drive a reduction gear unit giving 36 to 1 ratio at take-off. Unit will operate on 6 or 12 volts

36 to 1 G.E. (306 shaft RPM)	1095 EACH
28 to 1 Eclipse (130 shaft RPM)	
40 to 1 Eclipse (110 shaft RPM)	

GEM-528 Lear GEAR HEAD MOTOR

Lear 24 volt DC. 7.6 amp, series wound reversible motor with overload clutch. Motor turns 11,000 RPM driving thru a 10 to 1 gear reduction box which turns the final take-off shaft 1000 RPM. Adjustable limit switches control limit of travel. Take-off shaft adapts to flex or rigid drive. Size: 10" x 4". **995**

MAGNETIC BASE INDICATOR HOLDER

Time saver for precision checking. Magnetic base fits curved or flat surface. Has 45-50 lb. pull. 6 1/2" stainless steel rod which is mounted in ball socket to permit universal settings. **350**

NOTE: We have complete line of instruments, depth gauges, inspection mirrors, etc. Write Today!

PALLEY SUPPLY CO.

2263 EAST VERNON AVENUE
DEPT PS-3
LOS ANGELES 58, CALIF.

Order From This Ad. Pay by M.O. or check. P.O.'s. accptd. from D&B firms. Deposit with C.O.D.'s. All Prices FOB Los Angeles.

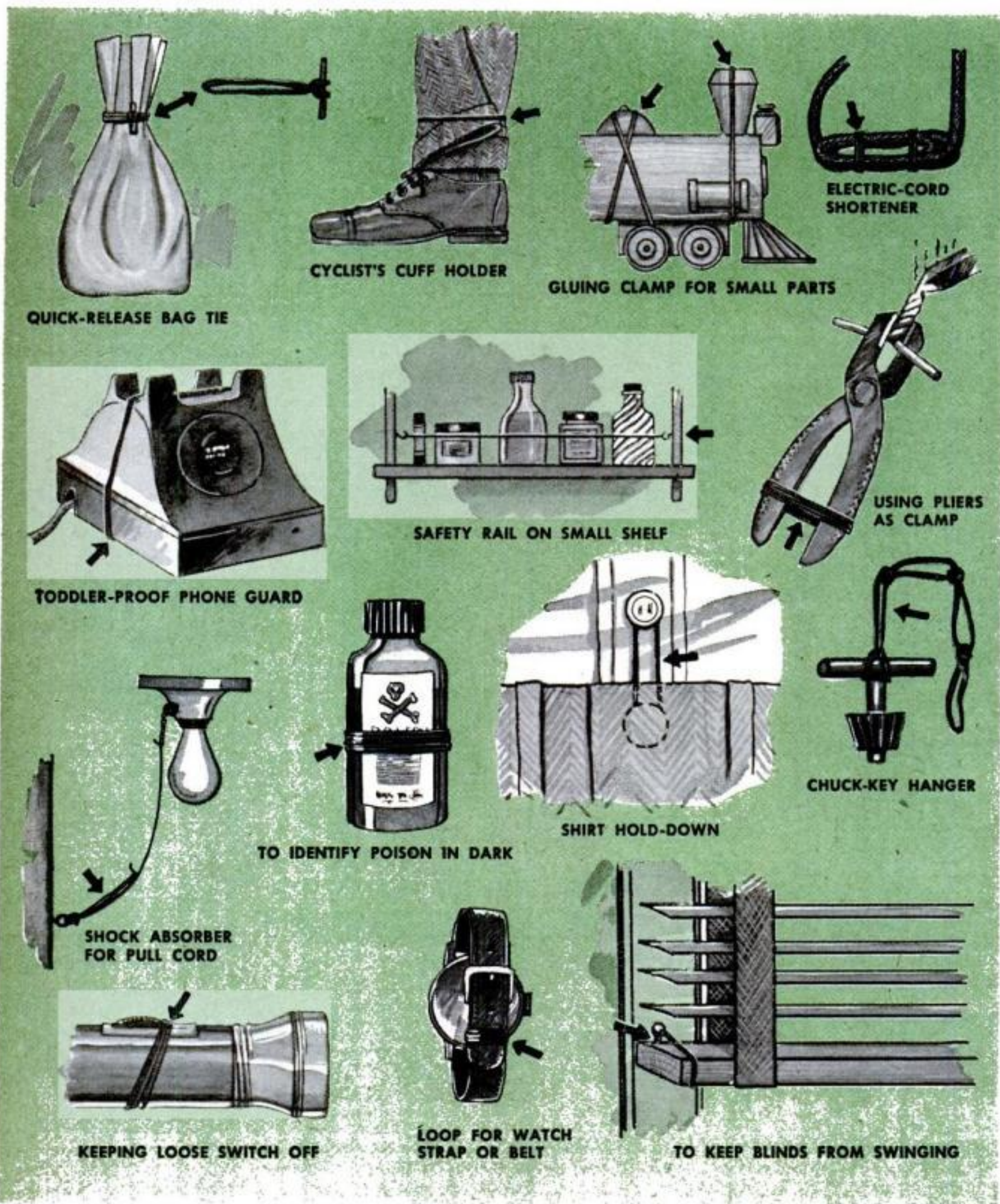
Let a Rubber Band Do It

They are handy for all kinds of chores from powering model gliders to identifying bottles of poison.

ALIVELY rubber band is very useful to a small boy. It flies model gliders, propels spitballs, and has been known to substitute for chewing gum. Young imaginations can

keep those rubber bands on constant duty.

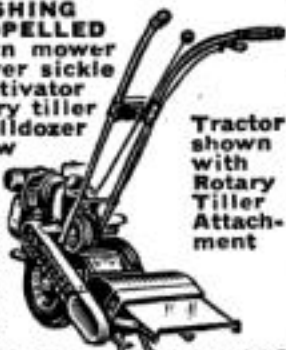
But so can you. The little finger snappers are handy for far more than holding cancelled checks together. For instance, they'll serve as light springs, or provide a quick nonslip hand grip. Below are 14 other chores rubber bands can handle with snap.—C. B. Colby, Briarcliff Manor, N. Y.



MASTER GARDENER

**NO PUSHING
SELF-PROPELLED**
It's a lawn mower
It's a power sickle
It's a cultivator
It's a rotary tiller
It's a bulldozer
It's a plow

Where else
can you get
a power
tool that
does so
many jobs.
Works for
you year
round.



Tractor
shown with
Rotary
Tiller
Attach-
ment

Does terrific job
Item 206
of preparing mellowed deep seed
bed without labor. Built-in power
take-off to drive pumps, saws, gen-
erators, etc. Safety clutch—can't
burn out. More versatile and effi-
cient than tractors costing twice as
much. Converts in minutes to Lawn
Mower, Power Sickle, etc. Basic
self-propelled 2 hp tractor with
Briggs or Clinton famous engine. Only
Snow Blow \$39.50
Rotary Tiller \$42.50
Sickle Bar-Mower \$42.50
Furrowing Tool \$ 8.75
Bulldozer \$11.25
Lawn Mower Hitch \$ 4.50
Cultivator \$ 8.75
Disc Harrow \$15.75
Freight prepaid to most areas.
Easy payment plan available.

VENTILATING FAN

(Item 10) Mount
on wall or ceiling
to ventilate any
area. Over range,
removes kitchen
smoke and odors.
Easily installed in
furnace pipes.
Forces even heat
to all rooms. Pow-
erful continuous
duty motor, 110-
120 v. A.C. Quiet, super efficient
fan moves huge volume of air (400
to 600 c.f.m.) 8" Fan, wt. 5 lbs.,
\$6.85; 9" Fan, wt. 6 lbs., \$7.85;
10" Fan, wt. 7 lbs., \$8.85; 12"
Fan, wt. 8 lbs., \$9.85.



HEAVY DUTY 12" fan, enclosed
motor, suitable for spray booths,
restaurant exhausts, poultry houses,
and other difficult applications.
Wt. 10 lbs. Item 10D....\$12.95

NEW MOTOR BIKE

Our Commando Motor
Bike is trouble-free—
carries amazing 5
yr. guarantee. Goes
to 150 miles per
gal. on all
roads. Speed to 40 mph. No
oil or gas
fumes. Easy
automatic ped-
al or pull starting. Has new prin-
ciple of automatic transmission.
No belts or chains—power trans-
mitted directly to rear wheel. Ac-
celerates quickly. Get free folder.
Factory priced
\$199.50
Buy complete unit—or motor only
to attach to your own bike.

FIRE EXTINGUISHER

(Item 39) Fully charged
(at 1,000 lbs. P.S.I. or
more) with CO₂ (carbon
dioxide), the proven
miracle fire fighting
chemical that smothers
oil, gasoline and elec-
trical fires. Play safe;
keep one in your car,
garage and home. Heavy
ICC approved steel cylin-
der, valve and 3000
lb. gauge that shows
available remaining pressure.
REFILLABLE at nominal cost.
Hose included for emergency
tire inflator or air blast. Wt.
4 lbs. \$19.50 value. \$6.95
Special.....

ELECTRIC HAND SAW

(Item 36) Most perfect-
ly balanced, smooth-
est running saw
made. Advanced
design—max.
power, light
weight. Easily ad-
justed for all an-
gles, depth
and width of cut.
Comes complete
with 6 1/4" comb.
blade, ripping guide and 10 ft. hv.
duty cord. Built-in sawdust blower.
Autom. telescoping guard. 110-120
v. AC-DC. Depth of cut 2 1/4".
1 year written guar. \$39.95
Wt. 12 lbs.....



(Item
36)

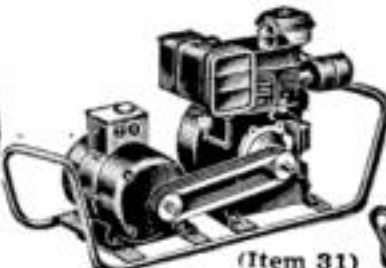
BUY DIRECT FROM FACTORY AT TREMENDOUS SAVINGS

FINEST GUARANTEED LIGHT PLANTS



(Item 24)

**PUSH BUTTON START
A.C. PLANT 500-700 watts**
—115 v., 60 cyc. A.C. Pow-
ered by a rugged 2 hp.
easy-starting Briggs gas
engine. No wiring neces-
sary. Just plug in and
operate. Plenty of current
for any oil burner, freez-
er, brooder, emergency
lights, etc. which require
up to 700 watts. Ideal for
Civil Defense, Fire Depts.,
trailers and camps. Com-
plete with Voltmeter and
built-in winding to charge
6 v. auto batteries. Item
24. Wt. 85 lbs. Fully Guar-
anteed. Be prepared if war
or storm knocks out power
lines. Reg. \$275. value.
\$143.50
700-800 Watt Plant
(Item 44) same as Item
24 but larger engine....
\$169.95
1000-1200 Watt Plant
(Item 45) same as Item 24 but
larger engine....
\$199.50
350 watts—115 v. D.C.
powered by a sturdy, easy-
starting 1 1/2 hp. Briggs
engine, perfect for lights,
radios, cabins, trailers,
etc. Built-in control box
with receptacle—just plug
in. Wt. 65 lbs. Item 273.
Reg. \$199.50
value..... \$99.75



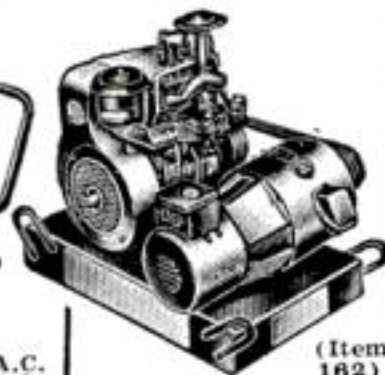
(Item 31)

GIANT 2000-2500 WATT PLANT

110-120 V. 60 cyc. A.C.
Absolutely the best made
— exclusive dynamically
balanced armature; heavy
windings develop up to
5000 watt overload for mo-
tor starting. Skid-mounted
—portable. Powered by easy
starting Briggs or 6 hp.
Wisconsin engine—com-
plete with all accessories;
engine easily disconnected
for other uses. Big outlet
box, voltmeter, no wiring
necessary. Ample current
for all purposes. Factory
warranty and complete
instructions included. Wt.
220 lbs. Reg. price \$585.00.
Special
at..... \$299.50

**With Electric Self
Starter**..... \$359.50
**Generator Only and con-
trol box. Drive it with
your engine or tractor**
\$169.50.

3000-3500 WATT PLANT
(Item 198) 110-220 v. 60
cyc. A.C. with Wis. En-
gine. **Push button start.**
Wt. 370 lbs. Heavy duty
..... \$399.50
**Generator only for belt
drive. Wt. 115 lbs. (Item
198A)..... \$239.50**



(Item
162)

HI-LINE 6000 WATT PLANT

(Item 162) **Push Button
Start**, 115-230 v. 60 cyc.
A.C. A brute of a
power plant with a rug-
ged 13 hp. Wisconsin en-
gine. Plenty of electricity
for ranges, water heat-
ers, freezers, pumps, ma-
chinery, etc. Affords
both 110 and 220 volts.
Ideal where heavy cur-
rent is needed. Wt. 590
lbs. Easily worth \$995.00.
With self starter.
Factory
price..... \$645.00

**Generator and control box
only, belt driven. Use
your own engine or trac-
tor. Wt. 240 lbs. (Item
163) Fac-
tory price \$345.00**

We make fully automatic
controls to operate any
of above light plants.
Write for details.

HEAVY DUTY D-C ARC WELDER



with
mounting
flange

Use as portable or
shop welder. Up to
300 amps. Senior
model. Made for years
of trouble-free, con-
tinuous service. Will
handle light or
heavy jobs. Easy-
ly welds up to 3/4" plate us-
ing 1/4" rods.
Built-in air
cooling system.
Arc is easy to
strike and hold, because of specially
designed arc stabilizer. Hi-lo switch
and dial control gives wide range of
welding heats. Run welder at 2600
rpm. with tractor, jeep or 15 hp. gas
engine, or 7 hp. elec. motor. Com-
plete with instructions, guar. and
double V belt or flat pulley. You can
pay more, but you can't buy a better
welder. (Item 38) Wt. 110
lbs. \$400 value at..... \$99.75
DUAL CONTROL MODEL same as
above but with built-in dual rheostat
for low heat soldering,
brazing, welding. Spec. \$119.50
WELDING KIT. Two 10 ft. leads,
welding helmet, electrode holder,
ground clamp. Sold
only with welder at..... \$10.50
Write for prices on A.C. Arc Welders.

6-pc. MAGNETIZED Screw Driver Set!
Permanently magnetized tem-
pered and hardened tool
steel blades. Plastic
handles—unbreak-
able and shock-
proof. Picks up and
holds screw in tight
spots. Makes impos-
sible jobs easy. You get
following types: Midget,
stubby, close quarter, cabi-
net, thin blade, machinist, heavy
duty, extra heavy duty. Fully guar-
anteed. Easily worth \$4.95.
Item 106; wt. 3 lbs. Special
\$1.95

3-pc. ADJUSTABLE WRENCH SET
Made of finest steel alloy, chrome
plated. Prices are exactly half
actual value. Takes the place
of a whole set of expen-
sive tools. Packed in
leatherette pouch.
**Set A—4-inch, 6-inch, and
8-inch wrenches. (Item
107), wt 2 lbs., only \$2.95**
**Set B—8-inch, 10-inch, and
12-inch wrenches. (Item
108), wt. 4 lbs., only \$6.45**



MASTER AIR COMPRESSOR

(Item 209)
High pressure
type for large
volume of air
for heavy duty
service. For
paint spray-
ing, in-
flating
truck and
autotires,
greasing,
and the
hundreds
of other
jobs done
by com-
pressed
air. Piston
type. 2" bore
compressor
with built-in
air filter. Master built with hi-strength
alloys and precision bearings. Stainless
steel tank, 12"x24", 2100 cu. in. cap.
Safe up to 500 lbs. Equipped with auto-
matic switch that starts and stops motor
to maintain desired pressure (up to 150
lbs.) and check valve, safety valve,
gauge, shut-off valve, 20 ft. air hose
and tire chuck. Beautifully balanced on
ball bearing wheels and rubber tires.
Low factory prices. With 1/2 hp. 110 v.
A.C. motor (Reg. \$175.00)
(Item 209)..... \$98.50
With 1/2 hp. motor, Reg. \$199.50 (Item 209A)..... \$119.50
With 2 hp Briggs Gas Engine (Reg. \$199.50)
(Item 209B)..... \$109.50
Write for price of compressor only. A
complete line of spray guns and air
tanks available.



CARRY-AIR
(Item 32)
Stainless steel tank—capacity 500 cu. in.
at 400 lbs. press. complete with inlet
and shutoff valves, press. gauge, detach-
able air hose, tire chuck. Fill at any
service station. Carry air for tire infla-
tion, blowing out lines, etc. One emer-
gency pays back cost. Wt. 10 lbs. Worth
\$20.00. Our price..... \$8.95
(Item 55A) **GIANT TANK**, size 12x24,
2100 cu. in. \$16.95

**Factory Prices on
Catalog Items**
Send 10c for BIG 1953
catalog. Hundreds of
bargains

(Item
32)

32 Pc. SOCKET SET



32-pc. Socket Set (Item 59)
Highest quality guar. non-break-
able sockets made by Husky.
Beautiful, matched chrome al-
loy, absolutely the best. Com-
plete range of 21 sockets from
1/4" thru 7/16" in 1/4" drive and
7/16" thru 1-1/16" in 1/2"
drive; 2 extensions, reversible
1/2" ratchet, adaptor bit, slide
head, all angle coupling, 2 end
wrenches, 1/2" speeder handle
and sturdy metal tool box. For
prof. mechanics who want the
best. Wt. 14 lbs. Easily worth
\$41.50. While
they last only..... \$16.95

45 Pc. SOCKET SET
(Item 205) Contains a complete
set of sockets in 1/2" drive, 3/4"
drive and 1/4" drive, plus all
necessary extensions, handles,
speeders, reversible ratchets,
etc.; all uncond. guaranteed
against breakage. Beautiful
matched chromed thin wall al-
loy sockets in a sturdy hand-
some steel tool box. Wt. 17 lbs.
List price \$62.90.
Factory Special..... \$26.95

HYDRAULIC JACKS



Heavy duty, precision
built, smooth, positive
acting with built-in
relief valve. Hi-Lift
with screw extensions.
Govt. surplus at a frac-
tion of orig. cost.
(Handle included.)
1 1/2 ton (Item 208)
Wt. 11 lbs..... \$6.45
3 ton
Wt. 15 lbs..... \$9.45
(Item 208A) Wt. 15 lbs..
5 ton (Item 208B)
Wt. 17 lbs..... \$11.45

EXTENSION CORD



(Item 16) 40
ft. heavy
duty, made
of specially
insulated
No. 14 2-
conductor
wire. So
tough that
you can drive over it and yet flexible
and easy to handle. Resists oil,
grease or water. Extends elec-
tricity up to 400 ft. without vol-
tage drop. Use indoors or out.
Complete with heavy rubber plug
and outlet. Wt. 2 1/2 lbs. Usually
\$4.50—Special 40 ft..... \$1.99
Comb: 2-40 ft. and 1-20 ft.
(total 100 ft.)..... \$4.95
100 ft. length (one piece) \$4.85
WIRE ONLY (Item 50)
No fittings. 100 ft..... \$4.00

Heavy Duty Power Cable

#12-2 Cond.—stranded, very
flexible, rubber covered, special
outside conductor for grounding
power tools, etc. Finest heavy
duty power cable made. 50 ft.
(Wt. 8 lbs.) Item 199... \$6.95
100 ft. (Wt. 16 lbs.)
Item 200..... \$12.95

NEOPRENE POWER CABLE
#14-2 conductor, in a flexible
Neoprene jacket. Wt. 9 lbs. 100
ft. Item 185..... \$9.95

Variable Speed Selector



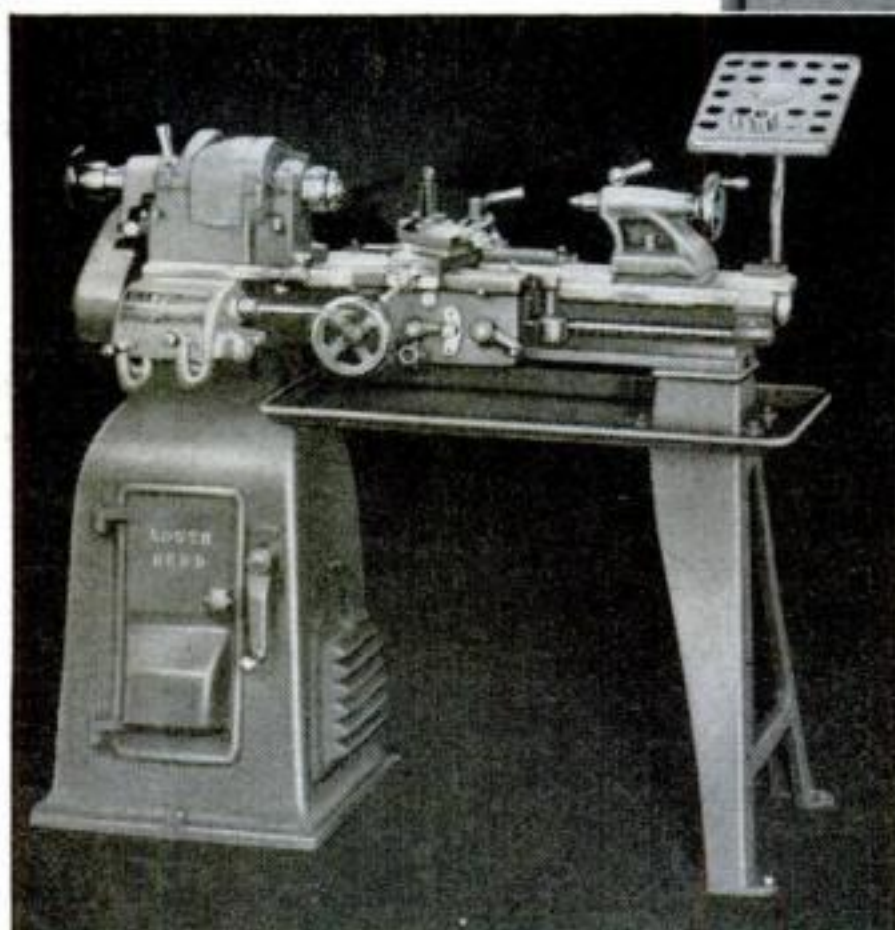
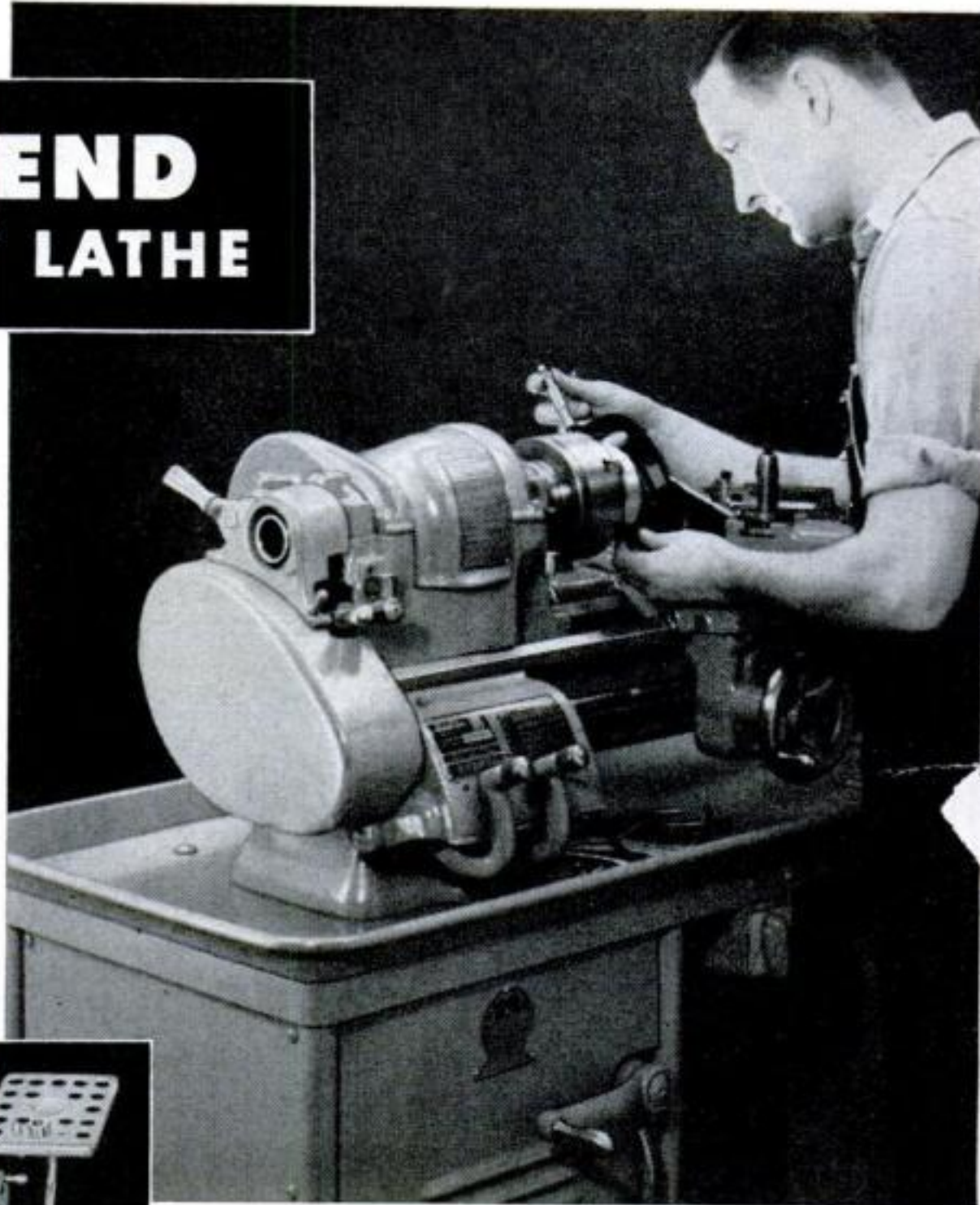
Heavy duty, made
by B. F. GOOD-
RICH for indus-
trial use. Pro-
vides instant
speed changes
for any drive.
For machine
tools, dryers,
printing, con-
veyors, produc-
tion lines, hoists
— any operation
requiring vari-
able speed. Ideal
for midget au-
tos. Employs
reliable "trou-
ble free" plane-
tary system. No
hydraulic power losses
or creeping. Infinite range, smooth
operation, easy installation (data
included). 3 sizes: 1/2-1 hp. wt.
36 lbs.; 1-2 hp. wt. 55 lbs.; 2-3
hp. wt. 105 lbs. Reg. list \$228,
\$252 and \$352. Our prices...
\$79.50, \$89.50 and \$114.50.

(Item
68)

Prices f.o.b. Factory. 10 day Money back guarantee. Send check or Money Order
MASTER MECHANIC MFG. CO., DEPT. 18-C Burlington, Wis.

SOUTH BEND 10"-1" COLLET LATHE

puts
*Professional
Quality*
in
Your Work

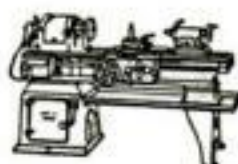


Built for exacting industrial work, the South Bend 10"-1" collet lathe satisfies the demands of any craftsman. Its accuracy simplifies precision jobs and permits work of the highest professional quality. This is the perfect tool for shop owners who want accuracy and versatility. Write for literature on the 10"-1" collet lathe and its many attachments.

SEND INFORMATION
CHECKED:

☐


☐ 9" and 10"
BENCH LATHES



☐ 10" to 16-24"
FLOOR LATHES



☐ 1/2" and 1" Collet
TURRET LATHES



☐ 14"
DRILL PRESSES



☐ 7"
BENCH SHAPERS

Name _____

Company _____

Street _____

City & State _____

Building Better Tools Since 1906 • SOUTH BEND LATHE • South Bend 22, Indiana



You are invited
to accept this

BUSINESS EXECUTIVE'S HANDBOOK

THIRD EDITION

BROWN and DORIS
Editors

17

BOOKS IN ONE

1600 PAGES, 5 x 8 inches,
with CHARTS, TABLES, DIA-
GRAMS, ILLUSTRATIONS,
7700 SEPARATE ITEMS

Fully Indexed for
Instant Reference

OVER 180,000 SATISFIED USERS

"A gold mine of information."—C. W. Wall (Kansas)
"A book on business I've ever seen. Wouldn't take
0 for my copy."—Stuart Randolph (Georgia)
"Greatly exceeds what I expected. I wish I had
of your offer sooner."—V. C. Glass (Texas)
"One of the finest aids available to an enterprising
business man today."—J. H. Bailey (Minnesota)
SEND NO MONEY — USE 10 DAYS FREE
I'll send a penny now. Just mail coupon to get this
remarkable Handbook for 10 DAYS FREE TRIAL.
See for yourself how YOU can step up your income
with this Handbook packed with practical business
facts you can use to cut costs—save time—build
profits—MAKE YOURSELF WORTH MORE MONEY.

FREE TRIAL AND

Simply mail coupon below to receive, as a gift, a copy of "BUSINESS LETTERS AND HOW TO WRITE THEM"

You can use this handy manual almost every day, to help you write
—how to reply to inquiries—grant or refuse requests—reply to com-
ments—solicit business, etc. Explains technique of successful letter writing
letters. Now in its 21st Printing—has been bought by thousands of
when you return coupon below for FREE-trial copy of "Business Letters and How to Write Them"

THE PRENTICE-HALL BUSINESS EXECUTIVE'S HANDBOOK

Here in one great practical handbook is brought
together thousands of useful facts and proven methods
by which you can advance yourself in business, step
up profits, reduce operating expenses, make the most
of your business future. Puts at your fingertips the

See below—just a small fraction of the thousands of items on
which the **BUSINESS EXECUTIVE'S HANDBOOK** gives you
practical money-making guidance:

THE DOLLARS AND CENTS OF BUSINESS:

A real executive knows how to "figure"—knows
short-cuts in business mathematics that make him
a quick thinker in a business deal. This section of
the Handbook shows you: how to calculate simple
and compound interest; bank discount; savings
through cash discount; trade discounts; averages;
markup and selling price; annuities; sinking funds
and amortization; depreciation; freight rates; veri-
fying by check numbers; tables of weights, meas-
ures and values; miscellaneous tables.

WRITE BETTER LETTERS:

Can you put your
ideas across "on paper"? This section of the
Handbook covers: a plan to improve letters; com-
piling a correspondence manual; letter-appraisal
chart; tone and spirit of the letter; how to answer
an inquiry; letters refusing requests; letters to re-
vive inactive accounts; letters that build goodwill;
how to answer complaints; legal aspects of business
letters; mechanics of the letter; special forms of
address; dictionary of correct usage.

HOW TO SELL BY DIRECT MAIL:

What prod-
ucts can be sold? What are the steps in planning
direct-mail selling? Here is expert guidance on:
selecting lists; types of direct mail; self-question
chart of direct advertising; testing direct mail;
how to record results; how to get and build mail-
ing lists; how to write sales letters.

HELPFUL FACTS ABOUT ADVERTISING:

Facts for small advertisers; developing demand;
how to work with an advertising agency; fixing the
advertising appropriation; selecting the right
media; testing your advertising; how to design and
register a trade-mark; copyright procedure; printing
and typography.

MANAGING SALESMEN:

If you are ever re-
quired to build and manage a sales force, turn to
the Handbook for useful facts on: determining sales
territories; sales quotas; recruiting and selecting
salesmen; equipping, training and compensating
salesmen.

SALES CONTRACTS AND FORMS:

Essen-
tials of a contract; when a sales contract must be
in writing; forms of contracts for sale of merchan-
dise; conditional sales contracts; lease agreement;
miscellaneous clauses in sales contracts; contracts
appointing agents for sale of merchandise; miscel-
laneous clauses in agency agreements; contracts
employing salesmen; special provisions in sales-
men's contracts; foreign trade definitions.

HINTS ON BUYING MERCHANDISE:

Buy-
ing the right thing; how to standardize specifica-
tions; buying the right amount at the right place,
at the right time, at the right price; procedure for
handling and analyzing bids; requisitions and pur-
chase orders; receiving and inspecting incoming
goods; checking invoices; stores and inventory
control.

HOW TO MANAGE AN OFFICE:

Do the
little details of office routine "throw" you? Here
is a commonsense road-map to follow when you
need help on: planning and maintaining the office
for efficiency; equipment, files and appliances
making office procedure function smoothly; econo-
mies in the use and printing of forms; hiring and
training new employees.

HOW TO CHECK CREDITS AND INCREASE COLLECTIONS:

Sources of credit information;
Dun & Bradstreet reports; special agency reports;
credit interchange; salesmen, attorneys and banks
as credit references; law relating to checks, notes,
drafts or bills of exchange; how to write letter
granting or refusing credit; how to write col-
lection letters and reminders; form collection
letters.

HOW TO DEAL WITH THOSE WHO OWE YOU MONEY:

Collection of a claim by suit or
the unpaid obligation; out-of-court agreements; as-
signment for benefit of creditors; equity receiver-
ships; voluntary or involuntary petition in bank-
ruptcy; corporate reorganizations; wage earners
plans.

FINANCIAL STATEMENTS:

Do you know how
to read a balance sheet? The Handbook tells you
the meaning of: current assets; fixed assets or fixed
capital; tangible fixed assets; investments; deferred
charges; current liabilities; fixed liabilities; de-
ferred credits; contingent liabilities; reserves; cap-
ital stock; surplus.

BUSINESS INSURANCE:

How to reduce the
cost of ample insurance protection; law governing
insurance policies; types of policies; fire, burglary,
theft, robbery insurance; fidelity and surety bonds;
credit insurance; miscellaneous coverages; business
insurance; group insurance.

DIRECTORS, OFFICERS, STOCKHOLDERS:

Law relating to directors; removal of director with-
or without cause; liability of director for acts be-
yond corporate powers; law relating to officers;
liability of an officer for mismanagement; rights,
liabilities of stockholders.

CORPORATE MEETINGS, MINUTES AND RESOLUTIONS:

Preparations for meetings;
stockholders' meetings; directors' meetings and
committee meetings; how to keep minutes of meet-
ings; parliamentary procedure.

PARTNERSHIPS:

What a partnership agreement
should contain; division of profits and losses among
partners; liability of a secret partner; power of a
partner to borrow money, collect debts, employ
assistants, purchase and sell property; liability of
an incoming partner; changing to a corporation.

TYPES OF BUSINESS ORGANIZATIONS:

Choosing a form of organization for a business;
raising of additional capital; power to do business
in any state; choosing a name under which to do
business.

MAIL THIS CARD NOW

Why did you
change to
CAMELS,
TYRONE POWER?

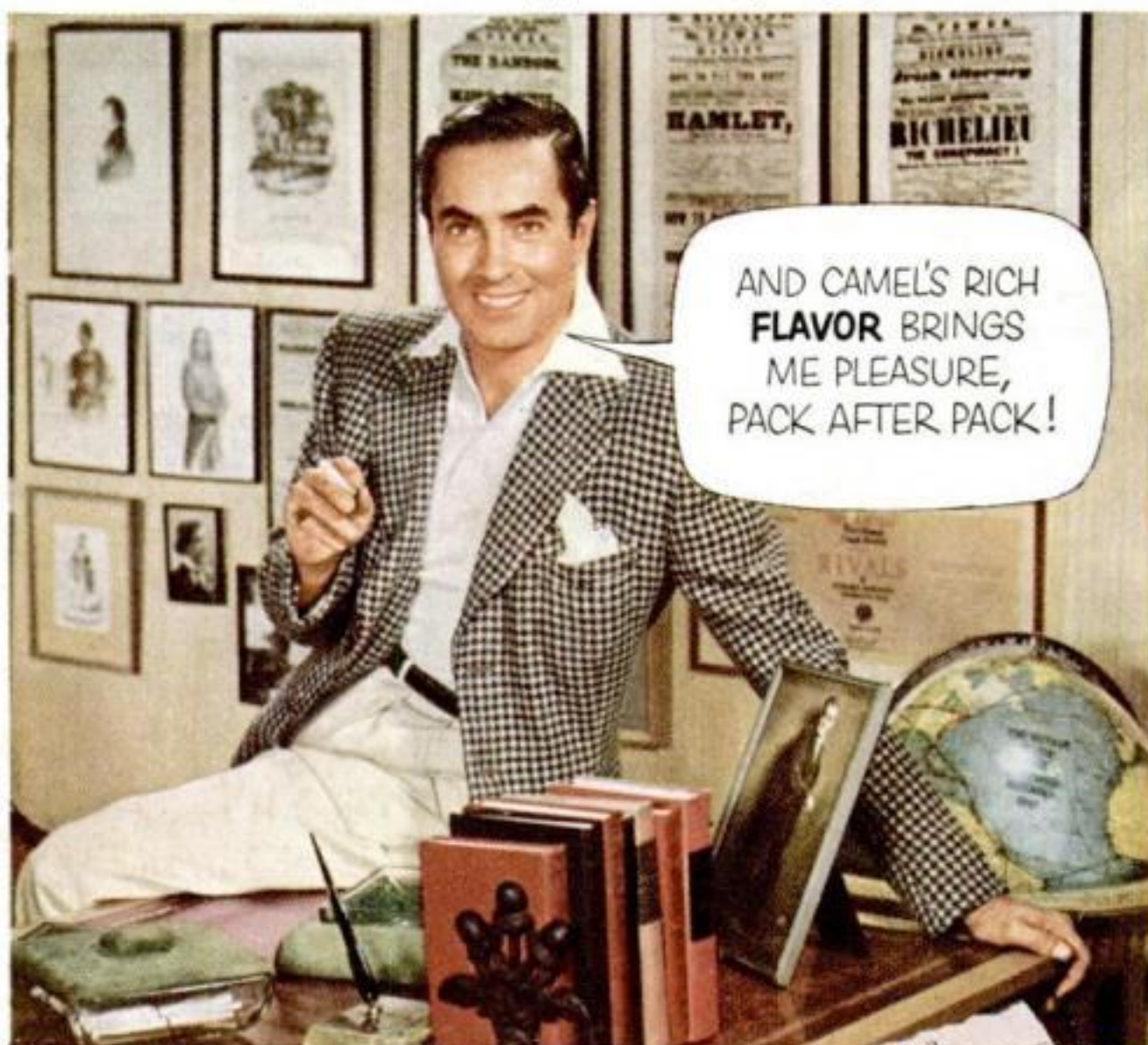
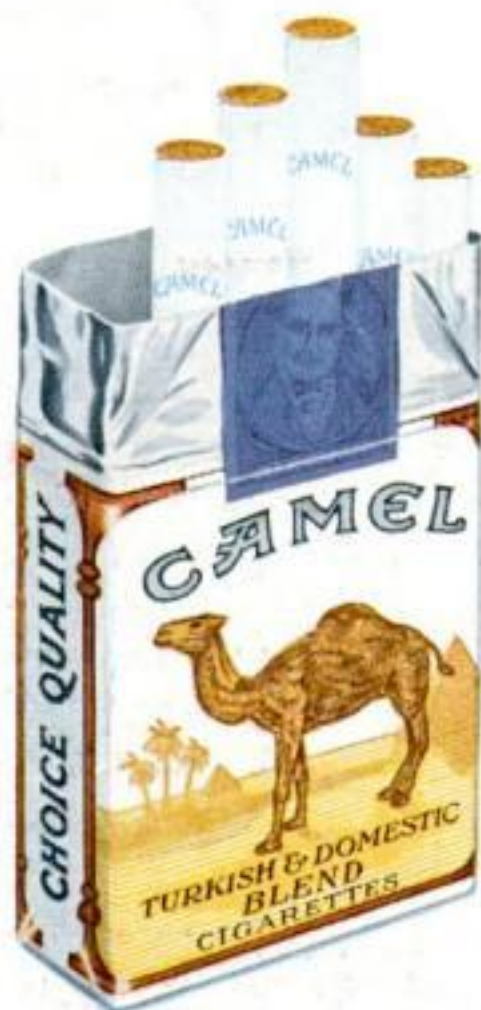


I TRIED
CAMELS
FOR
30 DAYS...



THEY HAVE
JUST THE
MILDNESS
I WANT...

TYRONE POWER, Star of "Mississippi Gambler", photographed on the set



AND CAMEL'S RICH
FLAVOR BRINGS
ME PLEASURE,
PACK AFTER PACK!

R. J. Reynolds Tobacco Co., Winston-Salem, N. C.

*There must be
a reason
why*

• Do what Tyrone Power did—make your own 30-day Camel mildness test. You'll see the reason why Camel is by far America's most popular cigarette!

Just smoke only Camels for 30 days. See how much you enjoy the rich, full flavor and the cool mildness. See how much more pleasure you get from Camels—pack after pack—than from any other cigarette!



Test Camels
for 30 days!

MORE PEOPLE SMOKE **CAMELS** THAN ANY OTHER
CIGARETTE